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GPT/BNSF Custer Spur EIS Co-Lead Agencies
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Dear GPT/BNSF Custer Spur EIS Co-Lead Agencies:

Thank you for this opportunity to submit scoping comments on the Environmental Impact Statement (“EIS”) for the Gateway Pacific Terminal/BNSF Custer Spur (the “Project”).

RE Sources for Sustainable Communities is a Bellingham-based nonprofit dedicated to creating healthy, prosperous communities that live in balance with the natural world. RE Sources promotes sustainable communities through recycling, education, advocacy, and conservation of natural resources.

RE Sources empowers the people who live here—children and adults alike—to do all they can to protect our home. More specifically, the organization provides individuals with the tools they need—key information, citizen trainings and workshops, and volunteer-led field programs—to actively safeguard our marine waters, rivers, lakes, beaches and air. RE Sources also oversees a number of programs designed to reduce air and water pollution and encourage waste reduction and recycling throughout the region.

As part of this mission, RE Sources' North Sound Baykeeper has worked with state agencies since 1999--in particular the Department of Natural Resources--to develop a management plan intended to protect the environmental values of the Cherry Point Reach within the administrative context of the state-managed Cherry Point Aquatic Reserve. This aquatic reserve designation provides an adaptive management plan intended to allow the existing three industrial facilities, and potentially a fourth, to operate using state-leased cutouts from the aquatic reserve as footprints for pier/wharf combinations intended to receive deep-draft vessels. Of particular note, the management plan identifies completion of the terms of the 1999 Settlement Agreement developed through legal action on the first iteration of GPT as a baseline criterion for issuing the fourth lease to SSA Marine, one of the Project's proponents.

The Baykeeper program has further worked to identify potential refinements to the three current refineries' National Pollution Discharge Elimination System permits that will reduce pollution of the Georgia Strait and surrounding environs. With chronic discharges of oil and grease, metals, PAHs, ballast water, inert scrubber gases, and accidental spills, the industrial presence at Cherry Point already threatens the health of the local ecosystem and the prey fish (Cherry Point Pacific

herring, sand lance, and surf smelt), dolphin and whales species, migratory waterfowl, migratory salmon, and Dungeness crab that inhabit the reach.

The aquatic reserve was created, in part, to facilitate the restoration of the Cherry Point Pacific herring. Once the largest run of herring in the Salish Sea (over 15,000 tons of spawning biomass in 1972), the Cherry Point Pacific herring have dwindled to less than 1,000 tons of spawning biomass. Recovery to 5,000 tons is targeted within the aquatic reserve's management plan. No additional potential negative impacts to herring populations should be permitted within the aquatic reserve unless they can be shown not to interfere with herring recovery.

This comment letter and the attachments thereto set forth RE Sources' scoping comments under both the National Environmental Policy Act ("NEPA") and the Washington State Environmental Policy Act ("SEPA"). Our comments address "issues, studies needed, alternatives to be examined, procedures and other related matters" (30 C.F.R. § 230.12), as specified in the Army Corps of Engineers ("COE") NEPA regulations, and "probable significant adverse impacts and reasonable alternatives, including mitigation measures" as set forth in SEPA (WAC 197-11-408).

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A. SCOPE OF PROJECT/AFFECTED AREA

The Project is a product of globalization. Global market forces, combined with domestic subsidies for coal leases through noncompetitive federal mining leases and the undervaluation of coal royalties, make the prospect of exporting low-value thermal coal economically viable. The market for this coal is in Asia; the coal will cross a third of the continent by rail and will be shipped across the Pacific Ocean, from the western to the eastern hemisphere. The Project applicant's efforts to limit environmental review to the Project site¹ are clearly noncompliant with the law in light of the scale of the Project and the geographical scale of Project-induced impacts.

The global effects of the Project must be considered under NEPA. Pursuant to Executive Order 12114,² an EIS must provide the information needed to consider significant effects on "the global commons outside the jurisdiction of any nation," which requires a consideration of the Project's effects on the oceans and the atmosphere. Such effects predictably will result from marine vessel traffic and greenhouse gas emissions of coal transport and coal combustion.

Executive Order 12114 further provides that the EIS must provide information on significant effects on the environment of foreign nations when a federal agency approves a project that will provide "a product, or physical project producing a principal product or an emission or effluent, which is prohibited or strictly regulated by Federal law in the United States because its toxic effects on the environment create a serious public health risk." The Project would provide coal, a product with emissions that are strictly regulated in the United States because of toxic effects and public health risks. Under the Clean Air Act, New Source Performance Standards ban new coal-fired power plants that do not meet stringent standards on carbon dioxide emissions. The Mercury and Air Toxics Standard mandates a reduction in mercury, arsenic, and other emissions from power plants. Coal combustion is, therefore, strictly regulated by Federal law in the United States (and will be phased out in Washington State by 2025). Therefore, the EIS must consider the toxic effects of coal combustion on the environment of the countries to which coal will be exported.

SEPA provides specifically that "a lead agency shall not limit its consideration of a proposal's impacts only to those aspects within its jurisdiction, including local or state boundaries."³ The SEPA Handbook states that "[a] large proposal involving actions in vastly different locations, such as material being mined at one site, then transported to and processed at another, is another example of defining the entire proposal. Appropriate environmental review would look at the impacts of all the related activities."⁴

¹ See, e.g., CH2MHill, *Public Involvement Plan* (Oct. 31, 2012) at 3-6, available at http://www.eisgatewaypacificwa.gov/sites/default/files/content/files/GPT_PublicInvolvementPlan-final.pdf (only identifies "environmental justice communities" within a mile of the Project site). The scoping process's violation of Environmental Justice requirements is discussed further below.

² 44 Fed. Register 1957 (Jan. 4, 1979), 3 CFR, 1979 Comp., p. 356, available at <http://www.archives.gov/federal-register/codification/executive-order/12114.html>.

³ WAC 197-11-060(4)(b).

⁴ SEPA Handbook, section 2.3.1, available at <http://www.ecy.wa.gov/programs/sea/sepa/handbk/hbch02.html#2.3.1>.

Both NEPA and SEPA require the consideration of direct, indirect, and cumulative impacts. While the Project proponent will likely attempt to limit the analysis of global impacts of the Project, based on the theory that the coal industry is exempt from the laws of supply, demand, and market price depending on the availability of supply, this argument is belied by the applicant's own claim that coal export to Asia is "needed" (see discussion of purpose and need, below). The EIS must consider the local, regional, national, and global impacts of the Project.

B. PURPOSE AND NEED

The 2011 Project Information Document states that the primary “need” for the project is the Pacific Rim nations’ “need” for exported U.S. bulk commodities, including coal.⁵ If this “need” is accepted as a basis for the project, it must be treated consistently throughout the analysis. The assumption that Pacific Rim nations “need” this coal effectively answers the question of the Project’s contribution to global climate change and other air pollution impacts. Without the Project, Pacific Rim nations would not have the coal that they “need,” and therefore the emissions arising from the combustion of coal exported through the Project are directly attributable to the Project, and to the Project alone. This “need” component forecloses any argument that other sources of coal would be available (and would contribute equivalent greenhouse gas and other air emissions) if the Project were not constructed.

Another “need” for the Project is stated to be the “need” for deep-water bulk marine terminals on the West Coast.⁶ If this “need” is the justification for the project, the EIS must treat it consistently throughout the analysis, considering alternatives that would meet the generic “need” for “bulk marine terminals” that “have the ability to transfer cargo effectively and efficiently between overland and waterborne modes of transport”. The EIS must determine the nature and extent of this need, including the nature and extent of “need” for a terminal for bulk commodities other than coal and whether this “need” can be met by alternative configurations on the Project site or by bulk terminals at other sites.

The applicant also cites the “need” for community and economic development.⁷ This facet of “need” obligates the Lead Agencies to determine the overall economic impacts of the Project. The lead agencies cannot determine whether the Project’s purpose and need has been met without considering the entire range of economic impacts attributable to the Project. This requires an analysis of the economic effects of 18 train trips per day, each train 1.6 miles long, along the rail line from the Powder River Basin to Cherry Point. It requires a calculation of the economic effects of the Project on fisheries, tourism, and other industries affected by the Project. The lead agencies must also calculate the economic effects of climate change and the long-range transport of air pollutants. Such impacts including ocean acidification, sea level rise, water supply effects, and the deposition of mercury in our local waters.

Finally, the applicants state that the “need” for the Project is based on their desire “to maximize annual throughput of commodities and to achieve the economies of scale necessary to ship low to medium value bulk commodities to international markets profitably.”⁸ This purpose and need statement focuses solely on the private applicant’s desires. *See* 33 CFR Pt. 325, App. B, para. 9.b.4 (purpose and need must be considered “from both the applicant’s and the public’s perspective”). The purpose and need statement is also inappropriate because the application states that a rail system capable of handling 1.6-mile-long trains is a Project “need.” This

⁵ Pacific International Terminals, Inc, Project Information Document (Feb. 28, 2011) (“PID”) at 3-1, available at <http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/2011-02-28-project-info-doc.pdf>. Coal is the only bulk commodity for which the Project applicant has a contract.

⁶ PID at 3-2.

⁷ PID at 3-3 – 3-4.

⁸ PID at 3-4.

specific design requirement is intended to foreclose reasonable alternatives and to ensure that only the Project, as proposed, can meet the purpose and need.

C. DEFINITION OF NO ACTION ALTERNATIVE

The “no action” alternative to the Project consists of existing conditions.

According to Army Corps of Engineers’ NEPA regulations:

The “no-action” alternative is one which results in no construction requiring a Corps permit. It may be brought by (1) the applicant electing to modify his proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of the permit. District engineers, when evaluating this alternative, should discuss, when appropriate, the consequences of other likely uses of a project site, should the permit be denied.”⁹

It is not possible to construct the Project, or any similar proposal, without a Corps permit. Any development of the upland wetlands will require a Corps wetlands permit under Section 404 of the Clean Water Act, and it is unlikely that a facility would not involve work in or over navigable waters, requiring a Section 10 permit under the Rivers and Harbors Act.

It is appropriate to evaluate the project as conceived in 1997 and modified by the 1999 Settlement Agreement¹⁰ as an alternative to the Project, but it is not an appropriate “no action” alternative. The Project applicant neither could nor would implement the 1997 permits under current conditions. The Settlement Agreement itself explicitly recognizes that “state and federal agencies, including the United States Army Corps of Engineers and the State Department of Natural Resources, likely will require further study and analysis of environmental impacts and impose further conditions pursuant to their independent regulatory or proprietary authorities before granting approval to this project.”¹¹ Studies required by the Settlement Agreement have not been conducted, and no adequate environmental review of that proposal was ever conducted. Furthermore, conditions have changed considerably in the past 15 years.

Under NEPA, the identification of the “no action” alternative will also constitute the “baseline” for the review of environmental impacts. There is no evidence in the record that sufficiently identifies the likely environmental effects of the previously-permitted project. The previous EIS was inadequate at the time (15 years ago) and is so outdated that it would not provide sufficient information to assess the 1997 project proposal under current conditions.

If the lead agencies nonetheless decide to evaluate the 1997 proposal as the “no action” alternative, they must conduct a full assessment of that proposal. This will be necessary to provide an accurate, updated baseline for assessment of the current proposal. If the 1997 proposal is the “no action” alternative, this will constitute conclusive evidence that the 1997 proposal is feasible. The lead agencies should approve that much smaller proposal, which notably did not include coal as a primary export commodity, rather than the Project, if (as seems inevitable) it is determined to be environmentally preferable to the Project.

⁹ 33 CFR Pt. 325, App. B, para.9.b.5(b).

¹⁰ Available at http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/1999-settlementagreement-2_000.pdf, henceforth the “Settlement Agreement,” (SA).

¹¹ Settlement Agreement at ¶ 1.

D. ALTERNATIVES TO THE PROJECT

Under NEPA, “[t]he EIS should discuss geographic alternatives, e.g., changes in location and other site specific variables, and functional alternatives, e.g., project substitutes and design modifications.”¹² The EIS should examine, at least, all of the following alternatives:

(1) Existing Permit and 1999 Settlement Agreement. Consideration of the current permit, as modified by the 1999 Settlement Agreement, provides the opportunity to conduct an adequate level of environmental review to inform the public and decision makers of the consequences of this proposal. The review that was undertaken 15 years ago was not compliant with state and federal requirements, and conditions have changed substantially. In particular, this proposal would have to be considered in conjunction with other past, present, and reasonably foreseeable actions. This analysis would provide for informed reconsideration of whether the project would be feasible, given required mitigation under existing conditions.

(2) Development in compliance with existing regulations. The EIS should consider a project that does not require a zoning or shoreline variance, that would avoid wetland impacts, that would meet the job goals and projections of Whatcom County’s Comprehensive Plan, and that would be consistent with Countywide Planning Policy I.8.¹³

The zoning variance provides the following explanation of the need for a variance:

The project includes facilities for unloading bulk commodities from unit trains up to 8,500 feet long. Sufficient length of appropriately graded track to accommodate unit train staging and unloading consumes a significant portion of the project area and limits the alternative configurations for material handling conveyors.¹⁴

The application claims that it is subject to hardships that do not affect other sites, but these “hardships” are self-created. If the project were configured to accommodate bulk commodities that would not involve 1.6-mile- long trains (i.e., commodities other than coal), no variances would be needed. The fact that the site is affected by critical areas is not unique to the site and does not create a “hardship” meriting the issuance of a variance. Contrary to the applicant’s statements on page 9 of the variance application,

¹² 33 CFR Pt. 325, App. B, para.9.b.5(c).

¹³ Countywide Planning Policy I.8 provides:

Economic development should be encouraged that: a) does not adversely impact the environment; b) is consistent with community values stated in local comprehensive plans; c) encourages development that provides jobs to county residents d) addresses unemployment problems in the county and seeks innovative techniques to attract different industries for a more diversified economic base; e) promotes reinvestment in the local economy, and f) supports retention and expansion of existing businesses.

Whatcom County Comprehensive Plan, App. C at C-10, available at http://www.co.whatcom.wa.us/pds/planning/comp_plan/pdf/20110101-appendix-c.pdf.

¹⁴ Gateway Pacific Terminal, Variance application, p. 8 of 10.

the variance is entirely connected to financial considerations. The alleged hardship is not based on physical characteristics of the site, in contravention of state and County variance requirements.

(3) A project with covered storage facilities. No coal export terminal has ever successfully prevented coal dust impacts, although the record is replete with (invariably belated) efforts to retrofit sites and processes to reduce coal dust impacts. The eventuality that coal dust will contaminate the Cherry Point Aquatic Reserve Review makes it essential to evaluate an alternative that would involve covered storage for all phases. Covered storage is currently only proposed for Phase II.

The failed LAXT coal terminal, for example, originally was constructed without enclosure because of the expense of covering coal and coke export piles, despite the concerns of neighbors and the Customs Service.¹⁵ When the use of a water spray system did not adequately control dust, the terminal constructed domes in order to reduce emissions. Since that time, covered storage has increasingly been used to prevent coal dust emissions.¹⁶

This alternative is particularly important in light of the nature of the Project and its setting. As discussed further below, the Project would represent an experiment: North American's largest coal export terminal would represent the first time that up to 2.9 million metric tons of highly combustible Powder River Basin coal has ever been stored at an export terminal at one time. The Project application and supporting information provide very little information about dust control and the feasibility of using wetting as a method to control coal dust, in particular given PRB coal's high friability and known propensity to spontaneously combust. Given the extraordinary sensitivity of the site (adjacent to a marine reserve) and the complete lack of support for the proposition that coal dust at the site can be controlled, the alternative of covered storage must be considered.

(4) Dock sharing with Alcoa. The Project's design demands construction of a new pier and wharf combination capable of receiving approximately 1.5 ships a day. Alcoa, GPT's next door neighbor, currently operates a pier and wharf combination that receives only one ship per week. Instead of building a new pier and wharf in sensitive herring habitat, the EIS should consider the possibility of sharing unused capacity at the Alcoa site.

(5) Alternatives for stockpile layout and design. The PID currently depicts a design layout that centralizes all coal handling areas in a single rail loop that destroys 141 acres of wetlands and degrades an additional 21 acres of wetlands. Property within GPT's ownership, however, includes multiple large areas of non-wetland property that could receive large stockpiles of coal in separate areas. The EIS should consider alternative layouts on GPT's 1,200 acre site that minimize wetland impacts.

¹⁵ Deborah Belgum, "Huge Coal Storage Facility Fuels Fears," Los Angeles Times (Aug. 16, 1996), available at http://articles.latimes.com/1996-08-16/local/me-34702_1_coal-storage.

¹⁶ See, e.g., Paul Moore, "Bulking Up: Bulk Minerals Storage," International Mining 58, 68-70 (Jan. 2012), available at <http://www.infomine.com/library/publications/docs/InternationalMining/Moore2012c.pdf>.

(6) Brownfield sites elsewhere. Notably, GPT's plan is to construct a large industrial facility on a greenfield site (which has been a burial ground for Lummi and other native peoples for thousands of years). Elsewhere throughout western Washington, on the same rail line, brownfield sites exist that are capable of accepting bulk commodities and that would address the purpose and need of the project. Before permitting environmental destruction, the EIS should examine re-use of already developed and/or contaminated lands in Longview, Tacoma, Seattle, Everett, and other deep-water port areas.

(7) Partnership with Westshore Terminals. Pacific International Terminals (PIT) originally formed as a partnership with Westshore Terminal at Deltaport in Delta, BC. PIT's purpose was to accept overflow capacity from Westshore. With a currently proposed small expansion of Westshore terminal (6 MMTA) and a proposal for development of an additional pod and massive expansion (more than doubling Westshore's design) the EIS should consider the potential for a PIT partnership with Westshore to meet the purpose and need of the Project application.

E. MONITORING AND ENFORCEMENT

The Council on Environmental Quality recently emphasized that “[monitoring is fundamental for ensuring the implementation and effectiveness of mitigation commitments, meeting legal and permitting requirements, and identifying trends and possible means for improvement.”¹⁷ Commitments to mitigation measures must include a specification of authority and documentation that the resources necessary to implement the mitigation measures have been secured. This is necessary to ensure the integrity of the NEPA process.¹⁸ The monitoring program must track whether mitigation commitments are being performed as described, and the mitigation monitoring procedures must provide for public involvement.

The identification of adequate monitoring procedures in the Draft EIS is essential for the Project, given the history of this site. To date, the project applicant has failed to comply with obligations set forth under the 1999 Settlement Agreement¹⁹ and has conducted construction and road building without the permits required by federal, state, and local law. Consequently, third-party monitoring that is not reliant on the applicant’s own personnel or on the applicant’s representations will be required in order to ensure that mitigation measures are implemented and the environment is protected.

Most notably, the applicant has already failed to meet Whatcom County’s standard for the mitigation of wetland impacts, which requires that “[t]he applicant and their representatives shall demonstrate sufficient scientific expertise and supervisory capability, and shall demonstrate the capability for monitoring the site”. WCC 16.16.245. In 2011, Whatcom County, state and federal agencies found that the applicant and its consultants conducted construction and road-building activities without the permits required at the federal, state, or local level.²⁰ These activities demonstrate both an “absence of sufficient scientific expertise” and an absence of “supervisory capability.”

Every mitigation measure must be accompanied by a clearly defined implementation plan and a specified monitoring obligation. This must be set forth in the Draft EIS in order to provide the public and decision makers with the information necessary to evaluate whether mitigation measures will achieve their putative effect and to provide an opportunity for public comment, including comment on the sufficiency of public involvement in mitigation monitoring. In the

¹⁷ Council on Environmental Quality, “Appropriate Use of Mitigation and Monitoring” (Jan. 14, 2011) at 10. Available at http://ceq.hss.doe.gov/current_developments/docs/Mitigation_and_Monitoring_Guidance_14Jan2011.pdf. See also 40 DFR § 1505.3.

¹⁸ Council on Environmental Quality, “Appropriate Use of Mitigation and Monitoring” (Jan. 14, 2011) at 3. Available at

http://ceq.hss.doe.gov/current_developments/docs/Mitigation_and_Monitoring_Guidance_14Jan2011.pdf

¹⁹ Available at http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/1999-settlementagreement-2_000.pdf.

²⁰ See Dept. of Ecology (Baumgarten) to PIT (Steinberg), Aug. 4, 2011, re: Gateway Pacific Terminal site conducting construction activity without coverage under Ecology’s NPDES Construction Stormwater General Permit,” available at http://www.ecy.wa.gov/geographic/gatewaypacific/20110804_PIT_warningletter.pdf; Whatcom County, Notice of Violation and Notice of Penalty (Aug. 17, 2011), available at <http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/enf11-047-Pac-Intl-Terminal-2.3-Notices-Clearing-20110817.pdf>.

event that monitoring demonstrates that mitigation measures do not meet defined goals, an adaptive management response must be required and implemented to ensure that mitigation is effective.

F. ENVIRONMENTAL JUSTICE

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order makes it the responsibility of each Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations". The provisions of the Executive Order apply fully to activities involving Native Americans.²¹

The importance of environmental justice, and the relevance of the Executive Order's NEPA requirements, were reaffirmed by "Memorandum of Understanding on Environmental Justice and Executive Order 12898" signed by executive agencies in 2011.

The memorandum accompanying the Executive Order identifies four important ways to consider environmental justice under NEPA.

1. Each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA.
2. Mitigation measures should, whenever feasible, address significant and adverse environmental effects of proposed federal actions on minority populations, low-income populations, and Indian tribes.
3. Each Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.
4. Review of NEPA compliance (such as EPA's review under § 309 of the Clean Air Act) must ensure that the lead agency preparing NEPA analyses and documentation has appropriately analyzed environmental effects on minority populations, low-income populations, or Indian tribes, including human health, social, and economic effects.

The Council on Environmental Quality has provided the following guidance to the implementation of Environmental Justice principles under NEPA:

"Agencies should develop effective public participation strategies. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional,

²¹ Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 1, available at <http://ceq.hss.doe.gov/nepa/regs/ej/justice.pdf>.

geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups.”²²

“Agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government’s trust responsibility to federally-recognized tribes, and any treaty rights.”²³

“The participation of diverse groups in the scoping process is necessary for full consideration of the potential environmental impacts of a proposed agency action and any alternatives. By discussing and informing the public of the emerging issues related to the proposed action, agencies may reduce misunderstandings, build cooperative working relationships, educate the public and decision makers, and avoid potential conflicts. . . . This may also be the appropriate juncture to begin government-to-government consultation with affected Indian tribes and to seek their participation as cooperating agencies. For this participation to be meaningful, the public should have access to enough information so that it is well informed and can provide constructive input.”²⁴

“Agencies should encourage the members of the communities that may suffer a disproportionately high and adverse human health or environmental effect from a proposed agency action to help develop and comment on possible alternatives to the proposed agency action as early as possible in the process.”²⁵

“Throughout the process of public participation, agencies should elicit the views of the affected populations on measures to mitigate a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe and should carefully consider community views in developing and implementing mitigation strategies. Mitigation measures identified in an EIS or developed as part of a FONSI should reflect the needs and preferences of affected low-income populations, minority populations, or Indian tribes to the extent practicable.”²⁶

Contrary to this guidance, there has been no apparent effort to ensure the participation of diverse groups during the scoping process. Tribes, low-income, and minority populations received no assurance of the right to speak at scoping meetings; instead, it is undisputed and well-documented that Project proponents were allowed to hire “line-sitters,”²⁷ who ensured that

²² Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 9.

²³ Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 9.

²⁴ Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 12.

²⁵ Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 15.

²⁶ Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* at 16.

²⁷ See, e.g., KUOW, “Paid Temps Do the Line-Sitting So Coal Backers Don’t Have To” (Dec. 5, 2012), available at <http://earthfix.opb.org/energy/article/backers-of-gateway-pacific-terminal-paid-temporary/>; “Big Coal packs 4th scoping hearing for export mega-terminal in Ferndale” (Nov. 30, 2012) (“These underhanded tactics gave the first

Project supporters were able to speak. This violates the tenets of environmental justice, which is intended to ensure participation by diverse and affected groups – not by the Project applicant.

Furthermore, the rail line to the Project has not been identified and there has been no effort to identify or involve the tribes, minority and low-income communities that will be affected by rail transport of coal to the Project site. The "study area" for purposes of the Public Involvement Plan is limited to "the area within 1 mile of where proposed construction activities would occur."²⁸ Tellingly, the Public Involvement Plan includes no plans for outreach during the scoping period. Instead, it only discusses plans for future outreach, stating that outreach "will" be conducted "before the draft EIS is *released*."²⁹

To overcome these clear deficiencies, the EIS must be particularly thorough in its examination of the interests of tribes, minority populations, and low-income communities. The evaluation of alternatives and mitigation measures must reflect their needs and preferences, as directed by CEQ.

To properly address the need to consult with Indian tribes, the EIS must actively incorporate the input of tribes including without limitation the Lummi, Nooksack, Swinomish, Snohomish, Tulalip, Sauk-Suiattle, Upper Skagit, Lower Skagit, and other Indian nations. Treaty negotiations in 1855 and 1856 at Point Elliott, Point No Point, Neah Bay, and Medicine Creek defined tribal rights to fish for salmon and shellfish in this region. With these rights reaffirmed by the Boldt Decision of 1974, the impacts of GPT on treaty rights should feature prominently in the Public Involvement Plan for the draft EIS.

60+ coveted speaking spots to coal port supporters.”), available at <http://www.dailykos.com/story/2012/11/30/1166143/-Big-Coal-packs-4th-scoping-hearing-for-Coal-Megaport-in-Ferndale> .

²⁸ CH2MHill, Public Involvement Plan (Oct. 31, 2012), available at http://www.eisgatewaypacificwa.gov/sites/default/files/content/files/GPT_PublicInvolvementPlan-final.pdf at 3-6.

²⁹ Id. at 3-7 - 3-8.

G. NEED TO ADDRESS CLIMATE CHANGE IMPACTS

Every relevant impact area must address Project impacts in conjunction with the effects of climate change. The recently released *Third National Climate Assessment*, prepared pursuant to the Global Change Research Act of 1990 and developed by a 60-person Federal Advisory Committee, addressed climate change impacts in the northwest,³⁰ including the following:

“Changes in the timing of stream flow related to changing snowmelt are already observed and will continue, reducing the supply of water for many competing demands and causing far-reaching ecological and socioeconomic consequences.”

“In the coastal zone, the effects of erosion, inundation, threats to infrastructure and habitat, and increasing ocean acidity collectively pose a major threat to the region.”

“[O]ne aspect of seasonal changes in precipitation is largely consistent across climate models: for scenarios of continued growth in global emissions, summer precipitation is projected to decrease by as much as 30% by the end of the century (Kunkel et al. 2012; Mote and Salathé 2010).”

“Across most of the Northwest, flows during the already low summer flow period would be significantly reduced in the 2040s compared to baseline (1915-2006) 3 conditions under the same scenario (A1B) (Littell et al. 2011). This would put stress on freshwater fish species such as endangered salmon and bull trout and necessitate increasing trade-offs among conflicting users of summer water.”

“Ocean acidification threatens culturally and commercially significant marine species directly affected by changes in ocean chemistry (like oysters) and those affected by changes in the marine food web (like Pacific salmon) (Ries et al. 2009). Northwest coastal waters are among the most acidified worldwide, especially in spring and summer with coastal upwelling (Butorac et al. 2010; Feely et al. 2008; Hickey and Banas 2003; NOAA’s Northwest Fisheries Science Center) combined with local factors in estuaries (Butorac et al. 2010; Feely et al. 2010).”

“Increasing coastal water temperatures and changing ecological conditions may alter the ranges, types, and abundances of marine species (Hollowed et al. 2001; Tillmann and Siemann 2011). Recent warm periods in the coastal ocean, for example, saw the arrival of subtropical and offshore marine species from zooplankton to top predators such as striped marlin, tuna, and yellowtail more common to the Baja area (Percy 2002; Peterson and Schwing 2003).”

Erosion, inundation, and flooding will threaten: public and private property along the coast; infrastructure, including ... coastal road and rail transportation, especially in Puget

³⁰ The Third National Climate Assessment (Jan. 2013) is available at <http://ncadac.globalchange.gov/download/NCAJan11-2013-publicreviewdraft-chap21-northwest.pdf>. Effects on the Northwest are addressed in Chapter 21.

Sound (MacArthur et al. 2012). Municipalities from Seattle (Fleming and Rufo-Hill 2012) and Olympia (Haub 2012, personal communication), Washington, to Neskowin, Oregon, have mapped risks from the combined effects of sea level rise and other factors.”

“Northwest agriculture’s sensitivity to climate change stems from its dependence on irrigation water, a specific range of temperatures, precipitation, and growing seasons, and the sensitivity of crops to temperature extremes. Projected warming will reduce the availability of irrigation water in snowmelt-fed basins ... Because much of the Northwest has low annual precipitation, many crops require irrigation. Reduction in summer flows in snow-fed rivers . . . coupled with warming that could increase agricultural and other demands, potentially produces irrigation water shortages (Washington State Department of Ecology 2011).”

In addition to the excerpts above from the Federal Advisory Committee, delta areas of the Skagit and Nooksack rivers in Skagit and Whatcom counties, as well as the shorelines of Birch Bay, Drayton Harbor, the Chuckanut Reach, and Padilla Bay will be dramatically impacted by rising sea levels. Impacts on environmental health and economic activities in these areas including commercial shellfish production, recreational clam digging, farming in the diked areas of Skagit County, wild salmon rearing in the delta tributaries, and others, should be studied as a component of the EIS.

H. IMPACTS AND MITIGATION

Mitigation Measures

Whatcom County Code section 20.68.701., governing development in the Heavy Impact Industrial District, states as follows:

Pollution control and nuisance abatement. Each industry is required to employ continuously the best pollution control and nuisance abatement technology when reasonably and practicably available for each particular industry; provided, that where federal, state, or regional laws or regulations provide for the level of technology to be employed, the appropriate standards shall apply.

In order to provide the information needed for Whatcom County to assess the Project's compliance with this provision, mitigation measures for pollution should not be limited to regulatory requirements. The Whatcom County Code states clearly that, in situations where there is no federal, state, or regional law that establishes the "level of technology to be employed," the applicant must be required to employ "the best pollution control and nuisance abatement technology" available. This standard is independent of other regulatory requirements and must be applied to all aspects of the project where no "level of technology to be employed" has been adopted.

Issues Relating to Powder River Basin (PRB) Coal

Powder River Basin coal must be examined in the context of the Project due to the Applicant's announcement, at the same time as submission of their JARPA, of a contract with Peabody Energy to export up to 24 MMTA of PRB coal. Peabody also retains options on up to the full 48 MMTA capacity of the primary (eastern) rail loop described in the PID.

The project application does not discuss the unique properties of Powder River Basin coal, which is exceptionally dusty and friable, degrades quickly, is highly explosive, and is more combustible when wet (a heat-producing, exothermic reaction) and when affected by wind. These properties affect a range of Project impacts, including air quality impacts from fugitive dust emissions, air quality impacts from spontaneous combustion, greenhouse gas emissions, emergency response requirements for combustion and explosion impacts, water quality impacts from increased leaching when hot water runs through stockpiles that are heating internally, and the quantity of water used for dust control. Many of these impacts must be examined throughout the transportation of coal, because "the spontaneous combustion of coal also creates a problem for transportations on sea or land."³¹

³¹ Kyuro Sasaki and Yuichi Sugai (2011). Equivalent Oxidation Exposure - Time for Low Temperature Spontaneous Combustion of Coal, Heat Analysis and Thermodynamic Effects, Dr. Amimul Ahsan (Ed.), ISBN: 978-953-307-585-3, InTech, Available from: <http://www.intechopen.com/books/heat-analysis-andthermodynamic-effects/equivalent-oxidation-exposure-time-for-low-temperature-spontaneous-combustion-of-coal>

The Project application's description of measures intended to reduce fugitive dust emissions from coal piles is generic and nonspecific. There is no discussion of spontaneous combustion, either in terms of its effects on coal handling or with respect to increased needs for emergency services. There is no mention of the effect of wind on PRB coal storage, nor is there any discussion of potential impacts on spontaneous combustion of spraying PRB coal with water in order to reduce fugitive dust emission.

These omissions likely reflect the fact that, while PRB coal is recognized to be exceptionally volatile, no studies have been conducted to address the effects of transporting and stockpiling the immense quantities of PRB coal that are proposed to be processed by the Project. It appears, in fact, that there has never been a storage area that would handle the quantity of PRB coal that is proposed by the Project.

As a coal industry consultant has stated, "Powder River Basin (PRB) coal's propensity to self-ignite presents an exceptional hazard."³² As another industry article observed:

[S]pontaneous combustion of coal is a well-known phenomenon, especially with PRB coal. This high-moisture, highly volatile sub-bituminous coal will not only smolder and catch fire while in storage piles at power plants and coal terminals, but has been known to be delivered to a power plant with the rail car or barge partially on fire.³³

Westshore Terminal only handled 8 million metric tons of PRB coal in 2011 (1/6 the quantity proposed for the Project at buildout). A coal industry article described the challenges that handling even this amount of coal created:

With its propensity toward spontaneous combustion, PRB coal handles quite differently than other coals. Westshore had a bit of a learning curve as they had handled more of it every year. "**You want to turn it over in a very short period ...** We've gotten used to handling all of it though. And currently the sub-bituminous mines now have an oxidation inhibitor, which was developed by GE a few years ago. We just put in a plant here about a year ago. In 2011, we only had **one major heating incident**. The GE inhibitor has been pretty successful," said Horgan.³⁴

With respect to self-heating and spontaneous combustion in stockpiles in general, "[t]here have been few large-scale experimental investigations in to the behavior of stockpiles of the size found in coal storage yards due to the expense of running such a test and the length of time it can take to run one experiment."³⁵ From the data available, it is known that "[t]he larger the

³² "The Special Challenges of Powder River Basin Coal" (July 15, 2010), available at <http://www.articlesnatch.com/Article/The-Special-Challenges-Of-Powder-River-Basin-Coal/1338316>.

³³ Roderick J. Hossfeld and Rod Hatt, "PRB Coal Degradation – Causes and Cures," available at http://www.prbcoals.com/pdf/paper_archives/56538.pdf ;

³⁴ Lee Buchsbaum, "While Canadian Terminals Expand Export Capacities, Many U.S. Producers are Still Going to be Short of Space ; Despite large expansion projects, there's just not room for all," *Coal Age* (March 20, 2012) (available at <http://www.coalage.com/index.php/features/1808-while-canadian-terminals-expand-export-capacities-many-us-producers-are-still-going-to-be-short-of-space.html>).

³⁵ Glenn B. Stracher, *Geology of Coal Fires: Case Studies from Around the World* (Geological Society of America, 2007) at 44.

stockpile, the greater the risk of spontaneous combustion” and “[n]o procedure provides a 100% guarantee of safety”.³⁶

Water and air are significant factors in spontaneous combustion. “Two mechanisms contribute to the rate of heat generation, coal oxidation and the adsorption of moisture. The reactivity of coal is a measure of its potential to oxidize when exposed to air. . . The moisture content of a coal is also an important parameter in the rate of heat generation of the coal.”³⁷

With respect to the effects of wind, measures that have been “tried” to reduce self-heating include minimizing the angle of the slopes of the stockpile in order to reduce wind access into the pile, compaction of the pile, protection of the pile by covering it with an inert material, making the atmosphere inert, and the use of wind barriers around the perimeter, to reduce airflow through the stockpile.³⁸ None of these measures apparently has been studied for its effectiveness in preventing heating and spontaneous combustion of PRB coal, especially in the quantities in which it will be stored on the Project site. The characteristics of the site itself also must be taken into account, including wind strength and wind patterns.³⁹

It has been acknowledged that the effect of “moisture addition on heat generation” and “moisture gain and loss due to changes in relative humidity” are insufficiently understood with respect to PRB coal.⁴⁰

If coal types will be mixed on the Project site, the spontaneous combustion potential can actually increase. “[A] coal blend containing a mixture of sizes throughout its volume is more vulnerable to self-heating than one in which the different sizes are segregated throughout its volume. The effect is very nonlinear, and the presence of a small amount of either a finely crushed coal or a very reactive coal can lead to a large increase in the propensity to ignite.”⁴¹ As noted above, the interface between wet coal and dry coal creates “the most dangerous scenario.”

In a study that identified “coal fire gas-minerals” emitted through the spontaneous combustion of coal, emissions of toluene, benzene and xylene (known carcinogens), halogenated compounds

³⁶ *Id.*

³⁷ Hossfeld and Hatt, *supra*, at 4. The authors further note:

Drying coal is an endothermic process, in which heat is absorbed, and the temperature of the coal is lowered. The adsorption of moisture on a dry coal surface is an exothermic process, with a heat producing reaction. **If it is partially dried during its mining, storage, or processing, coal has the potential to readsorb moisture, thus producing heat.** Therefore, the higher the moisture content of the coal, the greater the potential for this to occur. The most dangerous scenario for spontaneous combustion is when wet and dry coals are combined; the interface between wet and dry coal becomes a heat exchanger.

³⁸ Stracher, *supra*, at 45.

³⁹ It has been observed that “[s]tockpiles are safe in the two extremities of sufficiently low air circulation and sufficiently high air circulation.” With sufficiently low air circulation, oxidation will be limited by the supply of oxygen. With sufficiently high circulation (a “ventilated pile”), heat is removed more quickly than it is generated. “Thus, one mechanism to reduce self-heating is to control the flow of air through the pile. This has the danger that if it is incorrectly implemented, the risk of spontaneous combustion increases.” Stracher at 45.

⁴⁰ Hossfeld and Hatt, *supra*, at 9.

⁴¹ Stracher at 46.

(including dichloromethane and chloromethane in high concentrations), and many other compounds were found in gases from a coal mine in South Africa.⁴² Sulfur compounds, acid aerosols, and particulates have been identified in self-heating in a mine stockpile.⁴³ These emissions need to be addressed in the EIS.

Based on the foregoing, studies demonstrating all of the following are required in order to determine the impacts of the transportation and storage of Powder River Basin coal and its potential mixture with other types of coal on site:

- Effects on drying of the coal during train transportation from the PRB to Cherry Point, including differential effects in the drying of the coal and how that will affect spontaneous combustion during storage;
- Likelihood of spontaneous combustion during rail and marine vessel transportation and likely impacts, based on experimentation and observation and bearing in mind that existing incident reports are likely to be missing or understated;⁴⁴
- Effects of wind and water on the storage of PRB coal under the conditions of the Cherry Point site;
- Likely emissions from spontaneous combustion of PRB coal;
- The maximum length of time that coal can safely be stored on site, and measures to ensure that coal is not retained on site for a period of time that would increase the impact of spontaneous combustion;
- Emergency response resources needed to address fires, explosions, and gas releases; and
- Safety factors relating to the storage of PRB coal with other coal types.

In the absence of these studies, the generation of mitigation measures will be based on speculation. To the extent that this information is unavailable, this absence must be clearly noted in the EIS, and the speculative nature of mitigation measures must be identified.

It appears that the people of Whatcom County, as well as site workers, the operators of trains and marine vessels transporting PRB coal, and residents along rail lines, will be guinea pigs in the unprecedented global movement of enormous quantities of “extraordinarily hazardous” coal. *Especially* in the absence of sufficient knowledge to provide an adequate basis for conclusions, the EIS must avoid understating impacts or overstating the likelihood of mitigation.

⁴² Pone, J. Denis N., Hein, Kim A.A., Stracher, Glenn B., Annegarn, Harold J., Finkleman, Robert B., Blake, Donald R., McCormack, John K., Schroeder, Paul, The spontaneous combustion of coal and its by-products in the Witbank and Sasolburg coalfields of South Africa, *International Journal of Coal Geology* (2007)

⁴³ Stracher at 46.

⁴⁴ As stated in *The Special Challenges of Powder River Basin Coal*, with respect to incidents at coal-fired plants, “PRB coal’s environmental friendliness — and low price per BTU — come with a cost: dustiness that raises the risk of fires and explosions. Although many such incidents have not been widely publicized, they have occurred, and plant operators suggest that their frequency may be rising. Small-contained fires are reported to occur weekly at many plants, and several major explosions in recent years have caused extensive damage that cost many millions of dollars to repair.”

Impacts on Cultural Resources

Historical and cultural resources include prehistoric or historic sites, districts, buildings, structures, or objects that are listed on, or eligible for listing on, the National Register.

The Project applicant has already shown repeated and flagrant disregard for archaeological resources on the Project site, and local entities have not had the capacity to ensure compliance:

1. In 2011, the applicant damaged archaeological site 45WH1, a site that is eligible for the Historic Register, in the course of clearing the Project site prior to the completion of the NEPA process and with no required permits.⁴⁵ Not only did the applicant demonstrate its lack of concern for archaeological sites, but Whatcom County ignored the request of the State Department of Archaeology and Historic Preservation in issuing a “Mitigated Determination of Nonsignificance” after the fact, in conjunction with this work. The County’s conclusion that damage to a National Register-eligible site is “nonsignificant” establishes that mitigation measures relating to cultural resources require monitoring and implementation by outside entities and cannot be left solely to local agencies.
2. In 2012, the County allowed the applicant to conduct further geotechnical borings within “Parcel 15,” despite the County’s awareness that the Department of Archaeological and Historic Preservation should be notified. DAHP subsequently was notified (not by the County) of this work and advised the County that the site was known to contain cultural resources, had not been adequately delineated, and that failure to obtain a permit could lead to civil penalties.⁴⁶ The applicant should, of course, have been aware of these requirements, as should the County.

Not only must the EIS consider impacts on affected cultural resources on the Project site, but it must ensure *effective* mitigation measures to prevent damage to cultural resources. It has already been established that the existence of legal requirements is not sufficient to ensure that resources are protected. Mitigation measures must be developed in consultation with the tribes, reflecting tribal interests and preferences.

As discussed above, in our section regarding “Environmental Justice,” it further appears that the lead agencies have failed to meet their obligations to ensure that tribes, minority, and low-income residents are adequately consulted and provided the opportunity to participate meaningfully in the scoping process. This tendency must be corrected during the preparation of the EIS. The lead agencies must consult with the tribes, not only with respect to cultural resources, potential alternatives, and mitigation measures, but also to ensure that an appropriate cumulative effects area has been identified. The EIS must provide a “sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these

⁴⁵ Robert G. Whitlam, State of Wash. Dept. of Archeology & Historic Preservation, Letter to Chris Jenkins (Army Corps of Engineers) and Tyler Schroeder (Whatcom County) (Oct. 5, 2011), available at <http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/20111005-archaeological-site-damage.pdf>.

⁴⁶ Gretchen Kaehler, Wash. State Dept. of Archaeology & Historic Preservation, letter to Skip Sahlin (SSA Marine) (Sept. 10, 2012), available at <http://www.co.whatcom.wa.us/pds/plan/current/gpt-ssa/pdf/2012-09-08-14-gpt-emails.pdf>, pp. 23-25.

projects, and differences between the projects, are thought to have impacted the environment” through a “quantified or detailed analysis.”⁴⁷

For example, a generalized reference to the Project’s water use, as a cumulative impact on tribal fishing rights in the Nooksack River, will not be sufficient.⁴⁸ The EIS must provide a detailed, scientific and quantitative as well as qualitative assessment of the Project’s impacts on tribal cultural resources, ranging from archaeological resources, to religious practices, to fishing rights. In discussing impacts on cultural resources, the EIS must provide “adequate data of the time, type, place, and scale” of past impacts on tribal cultural resources (such as the destruction of archaeological resources on the Project site, as well as other past impacts on tribal cultural resources within the effects area) and must explain “in sufficient detail” how previous actions affected the environment.⁴⁹ The cumulative impact effects area for each impact must be identified in consultation with affected tribes.

In addition to tribal consultation, the EIS must also determine other sites that are on or eligible for National Register listing and assess potential impacts on these resources, including impacts of rail traffic and any revisions to the rail route. As stated in the letter from the State Historic Preservation Officer:

The scope of this project and the associated train traffic poses unique issues in developing the scope of the cultural resource studies including the need to address communities across the state that will witness changes in rail traffic including additional track right of way, spurs, and the associated impact from such train traffic including direct and indirect impacts such as vibration to historic structures, impact such as noise and traffic upon historic districts, and the impact to archaeological and historic properties due to accidents. This information will be critical in considering the development of the Area of Potential Effect (APE) for the Section 106 / National Historic Preservation Act compliance.⁵⁰

This is the case not only with respect to cultural resources in Washington state, of course; it applies equally to cultural resources along the entire rail route. Because the rail route has not been provided, the public and agencies with jurisdiction have not been provided with sufficient information to provide detailed scoping comments on this issue. The lack of adequate information does not excuse the lead agencies from conducting the analysis described by the SHPO.

⁴⁷ *Te-Moak Tribe of Western Shoshone of Nevada v. U.S. Dept. of Interior*, 608 F.3d 592, 603 (9th Cir. 2010).

⁴⁸ *See id.* at 604 (brief discussion of cumulative impacts on water resources violated NEPA).

⁴⁹ *Lands Council v. Powell*, 395 F.3d 1019, 1028 (9th Cir. 2005).

⁵⁰ Letter from Dr. Robert G. Whitlam, Nov. 28, 2012.

Impacts of Air Pollution from Marine Vessels

The EIS must evaluate air pollution from the 487 Panamax and Capesize vessels that would transport coal (and possibly other bulk commodities, at some future date, depending on demand) from the Project. Marine vessels are a significant source of air pollution. A 2007 study stated:

The marine transport sector contributes significantly to air pollution, particularly in coastal areas. Annually, ocean-going ships are estimated to emit 1.2–1.6 million metric tons (Tg) of particulate matter (PM) with aerodynamic diameters of 10 μm or less (PM₁₀), 4.7–6.5 Tg of sulfur oxides (SO_x as S), and 5–6.9 Tg of nitrogen oxides (NO_x as N). Recent studies have estimated around 15% of global NO_x and 5–8% of global SO_x emissions are attributable to oceangoing ships.⁵¹

As this study emphasizes:

Emissions from international ships are increasingly a focus for proposed regulation in local, national, and international arenas. Yet, in many ways regulatory deliberations have not been fully informed, as the extent of shipping emissions health impacts has been unknown. Previous assessments of regional shipping-related health impacts focused on European or Western United States regions, and ignore long-range and hemispheric pollutant transport. This undercounts international shipping impacts within local and regional jurisdictions, and does not properly inform international policy decision-making.⁵²

Local and international shipping impacts, including long-range and hemispheric pollutant transport, must be evaluated in conjunction with local and regional impacts of shipping in the EIS. The analysis and the generation of mitigation measures must take into account the nature of bulk shipping:

Bulk shipping concerns vessels designed to carry a homogeneous unpacked dry or liquid cargo, for individual shippers on non-scheduled routes. The entire cargo usually belongs to one shipper (owner of the cargo). Bulk carriers operate like taxi drivers, instead of buses: they carry a specific cargo individually in a specific ship for a certain price. Bulk ships do not operate on scheduled itineraries like container ships, but only via individual contracts.

There are four different categories of bulk carriers based on size: Handysize (10; 000-40; 000 DWT), Handymax (40; 000-60; 000 DWT), Panamax (60; 000-100; 000 DWT) and Capesize (larger than 100; 000 DWT). Vessels in different categories can carry different

⁵¹ James J. Corbett, James J. Winebrake & Erin H. Green et al., “Mortality from Ship Emissions: A Global Assessment,” *Environ. Sci. Technol.*, published on Web 11/5/07 and available at <http://www.sehn.org/tccpdf/pollution-shipping,%20deaths.pdf>.

⁵² James J. Corbett, James J. Winebrake & Erin H. Green et al., “Mortality from Ship Emissions: A Global Assessment,” *Environ. Sci. Technol.*, published on Web 11/5/07 and available at <http://www.sehn.org/tccpdf/pollution-shipping,%20deaths.pdf>.

products, take different routes and approach different ports. Practitioners treat them as different markets. Each such market consists of a large number of small ship-owning firms.

Supply of shipping services is determined in the short run by the number of voyages carried out by ship owners. The number of voyages is proportional to the speed of the vessel. Voyage costs include fuel, port/canal dues and cargo handling. They are convex in the chosen speed: there are only so many trips that a ship can execute in a given time period. In addition, voyage costs increase with the ship's age, as its fuel efficiency and overall operation deteriorates over time

Additionally, these impacts must take into account the cumulative effects of other developments and processes that will affect air quality. Cumulative effects must include not only pending projects, such as proposed coal export facilities in Washington and Oregon and the proposed doubling of Canadian metallurgical coal to be exported from North Vancouver's Neptune Terminal, but also increased particulate pollution from forest fires in Washington and other western states resulting from climate change (see "Climate Change" for sources).

Marine vessel emissions have significant health impacts:

Ambient concentrations of PM [particulate matter] have been associated with a wide range of health impacts including asthma, heart attacks, and hospital admissions. An important PM-related health effect is premature mortality; in particular, increases in concentrations of PM with aerodynamic diameters of $2.5\ \mu\text{m}$ or less (PM_{2.5}) have been closely associated with increases in cardiopulmonary and lung cancer mortalities in exposed populations. Cohen et al. estimated approximately 0.8 million deaths per year worldwide from outdoor urban PM_{2.5} air pollution, 1.2% of global premature mortalities each year.⁵³

The Corbett study estimates that "shipping-related PM emissions from marine shipping contribute approximately 60,000 deaths annually at a global scale, with impacts concentrated in coastal regions on major trade routes."⁵⁴ The study did not quantify other effects, such as asthma and hospitalizations, because of an absence of localized data at the scale of the study. Such localized data should be provided and used in the EIS to evaluate increased mortality and health effects from marine vessel emissions.

The study concludes that "[o]ur work demonstrates that mortality and health benefits in multiple regions globally could be realized from policy action to mitigate ship emissions of primary

⁵³ James J. Corbett, James J. Winebrake & Erin H. Green et al., "Mortality from Ship Emissions: A Global Assessment," 41 *Environmental Science & Technology* 8512 (2007), available at <http://pubs.acs.org/doi/pdf/10.1021/es071686z>. See also S.C. Anenberg et al., "Impacts of Global, Regional, and Sectoral Black Carbon Emission Reductions on Surface Air Quality and Human Mortality," *Atmos. Chem. Phys.*, 11, 7253–7267 (2011), available at www.atmos-chem-phys.net/11/7253/2011/doi:10.5194/acp-11-7253-2011.

⁵⁴ James J. Corbett, James J. Winebrake & Erin H. Green et al., "Mortality from Ship Emissions: A Global Assessment," 41 *Environmental Science & Technology* 8512 (2007), available at <http://pubs.acs.org/doi/pdf/10.1021/es071686z>.

PM2.5 formed during engine combustion and secondary PM2.5 aerosols formed from gaseous exhaust pollutants.”⁵⁵

Mitigation measures should be included in the EIS, not only for particulates, but for all of the emissions generated by the shipping of coal and any other bulk commodity from GPT. Pollutants emitted by marine vessels include carbon dioxide, sulfur oxides, nitrogen oxides and black carbon (a component of fine particulate matter). Nitrogen oxide emissions lead to the creation of ozone, a powerful greenhouse gas, while “black carbon (commonly known as soot) both directly warms the atmosphere and indirectly contributes to global warming by reducing the Earth’s albedo (thereby increasing the amount of solar radiation that is absorbed by the earth rather than reflected back into space), especially where it settles on ice.”⁵⁶ In addition, both sulfur oxides and nitrogen oxides exacerbate the acidification of oceans by contributing to acid rain.

Options for reducing ship emissions include switching fuels, on-shore power (“cold ironing”), vessel speed reduction, and emission reduction technologies. As one industry source stated:

Abatement is relatively straight-forward (less-polluting fuel, speed reduction, filtering technologies, better engine/architectural design, cold ironing). But, unlike land-based emissions industries, maritime has problems with:

- **Enforcement:** While the need, enforcement capabilities, and political will are local, the industry and policy-making apparatus is global
- **Accounting and Reporting:** Rudimentary methods for reporting mean little company-level accountability and poor emissions inventories
- **Incentives:** Beyond regulatory compliance, the industry has little incentive to improve (penalty or reward)⁵⁷

In assessing the extent to which any proposed mitigation measure will have any actual effect on marine vessel emissions, the fact that these vessels generally sail under “flags of convenience,” with little incentive to be concerned about regulatory compliance or accountability, must be considered. As Neef states, the problem with the maritime industry is “Paper-based, good-faith reporting, high admin[istrative] costs, disputes, difficult enforcement and low compliance.”⁵⁸ The EIS should document compliance rates and provide for additional enforcement mechanisms in light of these industry-acknowledged, widespread problems.

⁵⁵ James J. Corbett, James J. Winebrake & Erin H. Green et al., “Mortality from Ship Emissions: A Global Assessment,” 41 *Environmental Science & Technology* 8512 (2007)., available at <http://pubs.acs.org/doi/pdf/10.1021/es071686z>.

⁵⁶ Great Britain, Parliament: House of Commons, Environmental Audit Committee, *Reducing CO2 and Other Emissions from Shipping* (2009). .at 30.

⁵⁷ Dale Neef, “The Development of a Global Maritime Emissions Inventory Using Electronic Monitoring and Reporting,” 18th Annual International Emissions Inventory Conference (April 2009) at 3, available at http://www.epa.gov/ttnchie1/conference/ei18/session1/neef_pres.pdf.

⁵⁸ Dale Neef, “The Development of a Global Maritime Emissions Inventory Using Electronic Monitoring and Reporting,” 18th Annual International Emissions Inventory Conference (April 2009) at 13, available at http://www.epa.gov/ttnchie1/conference/ei18/session1/neef_pres.pdf.

Furthermore, facts, not aspirations, must be the basis of mitigation measures. For example, if “cold ironing” (using on-shore electric power to reduce emissions from generators while ships are docked) is proposed, the EIS must quantify the number of coal-carrying vessels that are currently equipped to plug into on-shore power. If there are no, or even very few, vessels that can use cold ironing, it will not be an effective mitigation measure.

Vessel Speed Reduction (“VSR”) requirements have been implemented in other ports and should be considered for the GPT terminal. VSR reduces all pollutants, including NO_x, PM_{2.5}, PM₁₀, DPM, & Sox; all ships can do it; and it has a short implementation time frame. Reductions have been studied and estimating methods have been accepted by EPA and California Air Resources Board (“CARB”).⁵⁹

In particular, reduced speed reduces engine load, which reduces black carbon emissions. While the health and climate impacts of black carbon have long been documented, the significance of its impacts were assessed in a recent study that concluded that “[o]ur best estimate of black carbon forcing ranks it as the second most important individual climate-warming agent after carbon dioxide.”⁶⁰ The study further states:

Black carbon has a unique and important role in the Earth’s climate system because it absorbs solar radiation, influences cloud processes, and alters the melting of snow and ice cover. A large fraction of atmospheric black carbon concentrations is due to anthropogenic activities. Concentrations respond quickly to reductions in emissions because black carbon is rapidly removed from the atmosphere by deposition. Thus, black carbon emission reductions represent a potential mitigation strategy that could reduce global climate forcing from anthropogenic activities in the short term and slow the associated rate of climate change.⁶¹

In particular, the cumulative impact of vessel emissions on arctic regions must be examined. “The Arctic environment is particularly sensitive to BC [black carbon] both in the atmosphere and when deposited on snow and ice (Quinn et al., 2008) ... In addition to emission from local ship traffic, BC [black carbon] emissions from ships as far South as 40° N may impact the Arctic climate (IMO, 2010a).”⁶² Cherry Point is at latitude 48° N. Thus, the EIS analysis of climate change must include the effects of black carbon from all sources, including marine vessels.

⁵⁹ Kevin Maggay, Port of Los Angeles, Environmental Management Division, “Vessel Speed Reduction (VSR)”, Presentation at the International Council on Clean Transport conference “Reducing Air Emissions from Shipping” (Dec., 13, 2012), , available at http://www.theicct.org/sites/default/files/Kevin%20Maggay_En.pdf .

⁶⁰ T. C. Bond, S. J. Doherty & D. W. Fahey et al., “Bounding the Role of Black Carbon in the Climate System: A Scientific Assessment,” *Journal of Geophysical Research* (published on line, Jan. 15, 2013), available at <http://onlinelibrary.wiley.com/doi/10.1002/jgrd.50171/pdf>., at 12.

⁶¹ T. C. Bond, S. J. Doherty & D. W. Fahey et al., “Bounding the Role of Black Carbon in the Climate System: A Scientific Assessment,” *Journal of Geophysical Research* (published on line, Jan. 15, 2013), available at <http://onlinelibrary.wiley.com/doi/10.1002/jgrd.50171/pdf>.

⁶² D.A. Lack and J.J. Corbett, “Black carbon from ships: a review of the effects of ship speed, fuel quality and exhaust gas scrubbing,” *12 Atmospheric Chemistry and Physics* 3985, 3991 (2012), available at <http://www.atmos-chem-phys.net/12/3985/2012/acp-12-3985-2012.pdf> . See also Bond, Dohert & Fahey, *supra*, at 10 (“Black carbon deposition on snow and ice causes positive climate forcing.”)

The fact that Washington's coastal waters have been designated an Emissions Control Area, in which many marine vessels may be required to switch to lower-sulfur fuels within 200 miles of shore,⁶³ should not foreclose the imposition of mitigation measures. First, even if cleaner fuels are used closer to shore, this change will reduce but not eliminate marine vessel emissions, including black carbon. The Project will still result in a net increase in marine vessel emissions compared to the no action alternative.

Second, the regulations will have little, if any effect on vessels as they traverse Alaskan waters on a typical Northern Pacific Great Circle route. Alaska has sought to be exempt from enforcement,⁶⁴ and in any case, the Alaskan Peninsula and Aleutian Islands are excluded from the North American ECA and will be subject to emissions of black carbon and other particulates in an environment where they will be particularly harmful.



Figure 1. Graphic delineates ECA boundaries.

Source: U.S. EPA⁶⁵

Finally, reports from Europe indicate that many vessels will not necessarily make the fuel switch,⁶⁶ an observation consistent with the generalized difficulty in compliance and enforcement discussed further below. There is a strong incentive not to comply with the ECA; in August 2012, for every 100 metric tonnes of fuel burned, low-sulfur fuels cost an additional \$12,900 per day.⁶⁷

⁶³ While vessels are required to make “best efforts” to obtain ECA-compliant fuel before entering the North American ECA, they are not required to deviate from their intended voyage to obtain ECA-compliant fuel oil. In lieu of using fuel oil with a sulfur limit not exceeding 1%, vessels may use equivalent methods approved by their flag States.

⁶⁴ “North American ECA Comes Into Effect,” *Ship & Bunker* (Aug. 1, 2012), <http://shipandbunker.com/news/am/377041-north-american-eca-comes-into-effect>.

⁶⁵ Graphic source: U.S. EPA, <http://www.epa.gov/oms/regs/nonroad/marine/ci/420f10015.htm#2>

⁶⁶ See, e.g., <http://www.transportenvironment.org/news/eu-agrees-significant-sulphur-reduction-shipping-fuels>

⁶⁷ “North American ECA Comes Into Effect,” *Ship & Bunker* (Aug. 1, 2012), <http://shipandbunker.com/news/am/377041-north-american-eca-comes-into-effect>.

The EIS should ensure that the Coast Guard and EPA, which have joint enforcement and compliance authority over the ECA,⁶⁸ specify clearly the resources available to ensure compliance. How many inspectors will be available, when and where will inspection occur, and what percentage of ships will be inspected?

Transportation of Coal by Rail

The Project will represent a significant shift in the transport of coal by rail. According to a March 1, 2012 report published by the Federal Railroad Administration,⁶⁹ coal was the “major rail-carried commodit[y] (in terms of tonmiles)” in 2012, at 40%.⁷⁰ This figure reflects the fact that “[t]he largest rail coal movements are from the Powder River Basin to generating plants in Illinois, Missouri, and Texas.”⁷¹ The same source notes that the railroads have invested in longer trains (to reduce labor) and larger, heavier locomotives (to pull the heavier trains).

The Project would shift the transport of the freight rail system’s “major rail-carried commodity” from the midsection of the country to the west coast. There is no question that the rail transport of coal to Cherry Point would require alterations to the existing rail network to accommodate a substantial increase in the number of long, heavy coal trains and to prevent adverse impacts on the communities through which the trains will pass. These changes must be *identified* and their impacts must be addressed. **The information provided to the public to date is grossly insufficient with respect to the route of, and necessary improvements for, the transport of coal to the Project site.**

Without a detailed and transparent discussion of the changes that will be required along the route(s) of coal transport trains, the EIS will not provide the public or decision makers with an adequate assessment of many impacts, ranging from noise to air quality to impacts on parks, waterways, protected spaces, and historical resources.

Furthermore, the EIS needs to identify mitigation measures for rail impacts. The EIS should apprise the public of (1) possible mitigation measures, (2) the extent to which impacts will be mitigated and the degree of impact after mitigation measures will be applied, and (3) the party or parties with funding and implementation obligations for mitigation measures.

This is particularly important in light of the fact that BNSF’s contribution to mitigation measures is likely to be minimal. As documented in “Coal Port News: A 2% Solution to Heavy Rail Traffic and At-Grade Railroad Crossings”,⁷² BNSF has suggested that Galesburg, Illinois should

⁶⁸ The ECA only came into effect in August 2012. “As a practical matter, it’s still unclear how the U.S. Environmental Protection Agency (EPA) and the U.S. Coast Guard will jointly enforce the new requirements, although the agencies signed a Memorandum of Agreement last year, setting forth each agency’s basic responsibilities. . . . It’s also not clear whether the unavailability of ECA compliant fuel worldwide will create the operational and enforcement challenges predicted by many in the industry.”

<http://www.reidlawus.com/blog/2012/08/01/u-s-moves-to-enforce-north-american-emission-control-area-eca-acknowledges-industry-may-not-meet-requirements-despite-best-efforts/>

⁶⁹ *Freight Railroads Background*, <http://www.fra.dot.gov/eLib/Details/L03011>

⁷⁰ *Id.* at 2.

⁷¹ *Id.* at 3.

⁷² Jean Melious, *Get Whatcom Planning* (March 10, 2012), available at <http://getwhatcomplanning.blogspot.com/2012/03/coal-port-news-2-solution-to-heavy-rail.html> .

serve as a mitigation model. Research shows, however, that serious rail impacts have long gone unmitigated in Galesburg and that the federal, state and local governments are the primary funding source for any mitigation that has occurred.

Every necessary project in every community along the rail line must be included in this analysis in order to provide an accurate calculation of the true costs of Project-induced growth in rail traffic. For example, the Federal Railroad Administration recently announced a grant of \$3.2 million towards the \$8.4 million Mount Vernon (Washington) Siding Extension Project, which is intended to enhance capacity and improve reliability for intercity passenger and freight rail.⁷³ Does this mean that taxpayers have already provided sufficient capacity for Project-induced rail capacity in this one small community, or will the Project make this improvement obsolete? In how many other communities will an outlay of many millions of dollars be necessary in order to ensure that current rail, road, and ferry traffic is not adversely affected?

When no other source of funding is identified, the Project sponsor should be required to make necessary improvements along the rail line. If the Project sponsor will not be obligated to mitigate these impacts, the EIS must fully apprise the public and decision makers of the extent to which the public will be burdened with the cost of coal transport, through federal, state, or local taxes. If this analysis is not based on complete and accurate information, the EIS will not have served its informational function because decision makers will have no factual basis for weighing Project costs and benefits.

For an informed calculation of Project tradeoffs, the EIS must also address the consistency of increased rail traffic with existing plans for and investment in the Designated High-Speed Rail (“HSR”) corridor for the Pacific Northwest. According to the Federal Railroad Administration, the implementation of HSR corridor projects and programs will:

- “Serve as a catalyst for growth in regional economic productivity and expansion by stimulating domestic manufacturing, promoting local tourism, and driving commercial and residential development
- Increase mobility by creating new choices for travelers in addition to flying or driving
- Reduce national dependence on oil
- Foster livable urban and rural communities”⁷⁴

To the extent that the Project-related coal transport will reduce the likelihood or increase the cost of achieving any of these outcomes, the EIS needs to disclose these impacts in order to serve its informational function.

In Washington alone, the state has received \$795 million to implement six HSR projects. Over \$751 million has been allocated to “reroute existing service and construct[] bypass tracks to allow for 79 mph maximum speed and 6 daily round trips.”⁷⁵ The state is preparing an integrated freight-passenger State Rail Plan, which will be released by the end of 2013.⁷⁶ The EIS must

⁷³ U.S. Department of Transportation Awards More Than \$3.2 Million to Reduce Intercity Passenger and Freight Rail Congestion, Nov. 27, 2012 <http://www.fra.dot.gov/eLib/details/L04065>.

⁷⁴ <http://www.fra.dot.gov/Page/P0060>.

⁷⁵ <http://www.fra.dot.gov/Page/P0554>.

⁷⁶ <http://www.wsdot.wa.gov/Rail/staterailplan.htm>

evaluate the consistency of Project-related coal transport with these plans and must identify adverse impacts on the HSR corridor. To the extent that Project-related rail traffic will increase the cost of proceeding with the HSR corridor, the cost of and responsibility for mitigation must be identified.

The Purpose and Need for increased passenger rail service was described as follows in the November 2010 “Finding of No Significant Impact” for the Washington State Segment of the Pacific Northwest Rail Corridor,⁷⁷ at page 2 (emphasis added):

In 1993, the Washington State Legislature determined that major intercity transportation corridors in the State were becoming increasingly congested. Population and employment were projected to increase 40 percent, and almost 50 percent, respectively, by 2013. This resulted in a seventy-five percent increase of the intercity travel demand forecast. Air travel, with heightened airport security, has become more challenging on the corridor since September 11, 2001. Highway traffic congestion on Interstate 5, which roughly parallels the entire Pacific Northwest RC, is no longer restricted to peak times around major cities but has spread to areas and times that traditionally have not experienced traffic congestion. Additionally, intercity passenger rail service is recognized by state and federal policy-makers as a means to address 21st century public policy goals, which include reducing the nation’s dependency on foreign sources of energy, reducing greenhouse gas emissions that contribute to climate change, increasing public safety, and strengthening transportation system redundancies in the event of natural and man-made disasters.

In order to expand service, reduce running times and improve reliability, constraints on the corridor must be addressed. In 2007, the number of freight and passenger trains averaged 49 per day between Vancouver, WA and Tacoma, WA; 60 per day between Tacoma and Seattle, WA; 41 per day between Seattle and Everett, WA; and as many as 28 per day between Everett and Blaine, WA.⁷⁸ The existing rail line has a number of bottlenecks where freight train traffic is heavy, especially near terminals such as Vancouver, Kalama, Longview, and Tacoma. **The heavy rail traffic in these areas restricts the number of passenger trains that can be operated**. Further, **scheduled running times are extended to allow for anticipated delays in these areas, but unanticipated delays at these locations still result in poor reliability**.

To address the need for expanded passenger rail service, the WSDOT proposes a program of railroad infrastructure improvements between the Columbia River and the Canadian border; a portion of the Pacific Northwest [rail corridor] (PNRC) that is approximately 297 miles long and is located on the BNSF north-south main line. The railroad infrastructure improvements that make up the Washington State Segment of the PNRC—from the Columbia River to the Canadian Border—will address network congestion and capacity constraints.

⁷⁷ <http://www.wsdot.wa.gov/NR/rdonlyres/962F8FB1-EF08-49C9-81D6-B3D62CF10D94/0/112010PacificNorthwestRCFONSI.pdf>

⁷⁸ The addition of 18 trains, each 1.6 miles long, is a substantial increase to all of these segments.

An assessment of the consistency of rail traffic induced by the Project with these goals is required. While the FONSI prepared for the Washington State Segment is clearly insufficient to disclose or evaluate impacts of Project-induced traffic, it highlights some of the areas that will require additional environmental review, both for the Project and for the development of HSR.

- **Noise and vibration.** The FONSI states that “Existing freight noise and vibration levels, and the noise and vibration that will be added from each improvement (and associated increases in the number of passenger trains), were predicted at the nearest sensitive receiver to the tracks.” The FONSI did not take into account future increases in freight trains.⁷⁹
- **Transportation.** The FONSI states that “The projects proposed that will allow the additional four round trips between Seattle and Portland, OR will be designed to create rail system capacity such that there will be no increase in freight rail congestion and the existing level of passenger service on the corridor will not be negatively affected. The additional passenger trains will have a positive impact on vehicle traffic congestion on the parallel route of Interstate 5...”⁸⁰ This conclusion clearly was not based on consideration of Project-induced rail traffic, especially in conjunction with rail traffic for other proposed coal export terminals and for the increasing use of rail for the transport of oil.
- **Air Quality.** The FONSI states that “Beneficial indirect effects that are anticipated as a result of the elimination of railroad bottlenecks and the addition of new rail capacity include improved air quality as delays and locomotive idling time decreases.” This assumption that “delays and locomotive idling time” would decrease does not include increased coal train traffic and does not account for the air quality effects of road and passenger train traffic when freight congestion requires increased idling time.⁸¹
- **Energy.** The FONSI states that “A primary goal of the rail program is to reduce the existing bottlenecks in the rail system. This will result in an overall decrease in travel time. . . . With the increase in faster and more reliable service, the increase in ridership will result in a decrease in auto fuel used, as diesel-powered passenger trains use less fuel than the equivalent number of passenger highway vehicles.” The analysis did not consider the effects of increased coal train traffic on service speed, reliability, or ridership in reaching this conclusion.⁸²
- **Effects of sea level rise.** While the FONSI included no assessment of the effects of sea level rise, its discussion shows that such effects could require significant investments: “WSDOT will work with BNSF and others to identify transportation infrastructure, including rail lines, highways, seawalls, and more, that could be vulnerable to sea level rise as a result of climate change. If vulnerable sections of the Pacific Northwest rail corridor are identified, actions will be recommended to protect rail and other vital transportation infrastructure as well as protecting communities and public safety. Possible strategies to address vulnerabilities include raising rail berms or building bridges to span

⁷⁹ FONSI at 14.

⁸⁰ *Id.*

⁸¹ *Id.* at 17.

⁸² *Id.* at 13.

inundated areas.” These impacts need to be addressed in conjunction with Project-induced freight rail traffic.⁸³

In remarks regarding the impacts of the Project on plans for and investments in HSR, the Washington State Department of Transportation has represented that “Rail capacity is not a concern for our passenger service. Under agreements with WSDOT, BNSF is obligated to ensure that Amtrak Cascades meets its performance requirements for on-time reliability and travel time reduction.”⁸⁴

The statement that “rail capacity is not a concern for our passenger service” appears to be at odds with information justifying the need for rail updates. Furthermore, if the agreements in question resemble that available through an internet search,⁸⁵ it appears that the public and decision makers need to be apprised of the precise nature and scope of several obligations.

For example, the Agreement specifies that:

[N]otwithstanding any provision of any other agreement to the contrary, the addition of any additional intercity passenger trains on the Cascades Corridor shall require a party other than BNSF to fund the cost of capital improvements necessary to preserve then-existing freight capacity whether used or unused.⁸⁶

If a party “other than BNSF” will be required to fund the cost of capital improvements necessary to provide for both passenger rail and Project-induced freight traffic, the EIS needs to identify this cost and the necessary improvements.

In addition, BNSF’s obligation is to ensure that “BNSF-Responsible Delay minutes” are limited to those stated in the agreement. BNSF must take corrective action “only with respect to factors within BNSF’s control,” which specifically excludes landslides. Landslide closures and delays are occurring with increasing frequency.⁸⁷ According to BNSF, 73 mudslides affected rail traffic between Thanksgiving and January 3, 2013.⁸⁸

It has been noted that “the increasingly familiar winter ritual of shunting passengers into hastily chartered substitute buses — or of sometimes even leaving passengers with no alternative transportation — will do nothing for the ridership growth that ultimately underpins the case for

⁸³ *Id.* at 17.

⁸⁴ John Sibold, WSDOT, “Pacific Northwest High Speed Rail Corridor: Amtrak Cascades Passenger Service Update,” Bellingham, WA, 10/26/12 at 4, available at <http://resources.wcog.org/border/10-18-12scpres.pdf>.

⁸⁵ See, e.g., http://columbian.media.clients.ellingtoncms.com/news/documents/2011/03/02/executed_service_outcome_agreement_among_wsdot_bnsf_and_amtrak.pdf

⁸⁶ *Id.* at Para. 5(b), emphasis added.

⁸⁷ See, e.g., <http://crosscut.com/2011/12/15/transportation/21683/Seattle-states-rail-growth-faces-mud-on-tracks/>; <http://usnews.nbcnews.com/news/2012/12/28/16216538-landslides-take-out-amtrak-service-in-rainy-pacific-northwest?lite>; WSDOT Blog, speaking of the 2010-2011 season (“It is expected that we will have some mudslides along the Amtrak Cascades rail line between October and March, but this is ridiculous! Normally, we average anywhere from three to 10 mudslides over a six-month period, but in the last three months we’ve had nearly 20.”), <http://wsdotblog.blogspot.com/2011/02/frustrated-with-mudslides-along-amtrak.html>.

⁸⁸ http://seattletimes.com/html/localnews/2020054388_sounder04m.html.

increasing service in the corridor.”⁸⁹ The effects of landslide closures and delays are exacerbated by BNSF’s policy to shut down passenger rail (but not freight) traffic for 48 hours. WSDOT’s agreement does not address these delays. If they are not addressed by the EIS, no mitigation will be required. This makes it essential to conduct the studies necessary to assess the impact of increased rail traffic on landslides.

As one author observed:

Despite growing scientific knowledge about where and why landslides occur, the threat they pose continues to increase, for reasons familiar to students of ecological hazards: increasing development in vulnerable terrain, global climate changes that exacerbate severe weather, and deforestation. . . .

Though the American West Coast is one of the most slide-prone regions in the world, other natural disasters there steal the headlines — earthquakes, volcanoes, floods, wildfires. Debris flows are widely seen as cosmological misfires, freaks of nature, and as a result people tend to underestimate the risks they pose. Such misperceptions contribute to the general neglect of landslide studies by research entities. . .

The debris-flow scenario depends on numerous factors: soil depth and composition, the kind of vegetation and the size of tree roots, subtle variations in slope shape, road cuts, drainage pipes, incongruities in underlying bedrock, even the presence of small animal burrows. Water can collapse a slope after traveling beneath the surface from miles away. **Vibrations from trains are suspected of triggering debris flows.**⁹⁰

Even given the dearth of attention to the causes of landslides, it is known that rail vibration can trigger landslides. “Train vibration levels may be quite high, depending on the speeds, load, condition of track, and amount of ballast used to support the track.”⁹¹ The “main concerns of vibrations” include “[t]riggering of landslides.”⁹²)

This makes it essential for sufficient studies to be conducted for the EIS to determine the effects of vibration from 18 additional heavy (~17,000 tons when loaded), 1.6 mile trains on soil stability and landslides along the entire rail route. BNSF’s freight rail contribution to landslides is a factor within BNSF’s control, and it should be required to take corrective measures to cure delay from landslides. If landslides continue to be blamed solely on rainfall, however, BNSF can continue to exclude the closures and delays caused by landslides. While its trains would

⁸⁹ <http://crosscut.com/2011/12/15/transportation/21683/Seattle-states-rail-growth-faces-mud-on-tracks/>.

⁹⁰ Brenda Bell, “The Liquid Earth,” originally published in *Atlantic Monthly* (Jan. 1999, pp. 58-72), reprinted at http://landslides.usgs.gov/learning/liquid_earth/.

⁹¹ *Transportation Related Earthborne Vibrations* (Caltrans Technical Advisory, 2/20/02) at 17, available at <http://www.dot.ca.gov/hq/env/noise/pub/TRANSPORTATION%20RELATED%20EARTHBORNE%20VIBRATIONS.pdf>.

⁹² *Id.* at 1.

contribute to landslides that will prevent the establishment of a reliable HSR system for passengers, BNSF would remain exempt from helping to reduce those impacts.⁹³

A full range of mitigation measures for landslides should be addressed, ranging from sensor systems that identify changes in the ions of groundwater when a slide is imminent to hillside stabilization. To the extent that rail vibration will exacerbate landslide issues, creating delay, diminishing the viability of passenger rail, and putting rail employees and the public at risk of accidents, decision makers must be able to weigh these impacts against the jobs and tax revenue forecast from the Project.

Damage from rail vibrations is also a "real possibility" when rail lines are close to "normal residences, buildings, or unreinforced structures," and at a greater distance from "historical buildings, buildings in poor condition, or buildings previously damaged by earthquakes." Vibration-sensitive operations, including "[a]erospace and electronic laboratories, close tolerance manufacturing, calibration of sensitive instruments, radio & TV stations,"⁹⁴ can also be damaged and even closed down by vibrations. Index Sensors, near the Harris Avenue at grade crossing in Fairhaven, is one of many examples of this type of industry in western Washington.

These uses and structures must be identified and vibration impacts must be assessed. This is particularly important for decision makers' accurate assessment of the economic costs and benefits of the Project. To the extent that rail vibration will damage buildings and require businesses to shut down, decision makers must be able to weigh these impacts against the jobs and tax revenue forecast from the Project.

To the extent that mitigation for vibration is available (*e.g.*, improvement of tracks), it should be implemented. Because it is likely that vibration impacts will not be susceptible to reduction at the source, mitigation of affected property owners should be implemented. The Project applicant should conduct "before and after" assessments of affected properties and should compensate property owners for damages to businesses, structural damage, and damage to quality of life (shaking and breakage of dishes, inability to use outdoor areas for relaxation, and other breaches of the right to quiet enjoyment of property).

Coal Particles, Soils and Sediments

Coal particulates of various sizes will inevitably end up entering the nearshore environment both during loading processes (from the conveyor and from the ships' holds) and from wind effects on coal stockpiles.⁹⁵ These particulates have different rates of settling and distribution patterns

⁹³ BNSF and a \$16 million dollar federal grant are currently funding mudslide reduction work. http://seattletimes.com/html/localnews/2020054388_sounder04m.html The EIS needs to identify increases caused by Project-induced rail traffic.

⁹⁴ *Id.* 18.

⁹⁵ A Study of Fugitive Coal Dust Emissions in Canada. Nov. 2001. The Canadian Council of Ministers of the Environment.

based on size of the particle.⁹⁶ Over time, we can anticipate the integration of coal particulates in subsurface sediments including sandy areas used for spawning by Pacific sand lance, intertidal zones used by Pacific herring to spawn, and beach areas used by surf smelt for spawning.

With PRB coal containing quantities of mercury, heavy metals, and high concentrations of polycyclic aromatic hydrocarbons, the fate of transported particles in the marine environment must be studied. Distribution of fine particulates must include surface currents and wind effects that result in beach deposition, while somewhat larger particles need to be examined as they commingle with other sediments and clean sand.

Because of the contaminants contained within PRB coal, it is critical that the EIS address the bioavailability of those substances, especially PAHs, in the marine environment. Herring are uniquely sensitive to PAHs with concentrations as small as one part per billion capable of causing embryo malformations or mortality.⁹⁷

Coal particles in the nearshore environment may also have direct impacts on the health of macroalgae and seagrasses. According to Gibson et al.⁹⁸, the physical impacts of coal particulates on nearshore plant life may include the following issues which must be studied in the EIS:

Abrasive action: p. 76: "Over 8 days, plants gained weight when no colliery waste was present but lost weight in the presence of waste. Maximal weight loss occurred in the presence of waste of grain size 0.5–2.0 mm (vs. <0.5 mm and 0–2.0 mm) under turbulent conditions, suggesting that the coarse sediment acted as an abrasive and may have been responsible for the removal of components of the ephemeral algal flora of shores receiving colliery waste in northeast England."

Light quality: p. 76: "Particles of coal in suspension will also reduce the amount and possibly the spectral quality (Davies-Colley & Smith 2001) of light that reaches the sea bed or other underwater surfaces, in a manner similar to other suspended particles (Moore 1977). This, in turn, may affect growth of plants such as seaweeds, seagrasses, and microalgae on the surfaces of sediments and rocks (e.g., Duarte 1991, Preen et al. 1995, Vermaat et al. 1996, Terrados et al. 1998, Longstaff & Dennison 1999, Moore et al. 1997)."

Reduced photosynthesis: p. 77: "Mangroves growing around South Africa's largest coal-exporting port, Richards Bay, accumulate deposits of coal dust on both upper and

⁹⁶ Coal dust dispersal around a marine coal terminal (1977–1999), British Columbia: The fate of coal dust in the marine environment. Ryan Johnson, R.M. Bustin. Department of Earth and Ocean Sciences, The University of British Columbia, Vancouver, B.C., Canada

⁹⁷ Unexpectedly high mortality in Pacific herring embryos exposed to the 2007 Cosco Busan oil spill in San Francisco Bay. Incardona JP, Vines CA, Anulacion BF, Baldwin DH, Day HL, French BL, Labenia JS, Linbo TL, Myers MS, Olson OP, Sloan CA, Sol S, Griffin FJ, Menard K, Morgan SG, West JE, Collier TK, Ylitalo GM, Cherr GN, Scholz NL. Proc Natl Acad Sci U S A. 2012 Jan 10;109(2):E51-8. doi: 10.1073/pnas.1108884109. Epub 2011 Dec 27. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22203989>

⁹⁸ Biological Effects of Unburnt Coal in the Marine Environment, 2005 by R.N Gibson, R.J.A. Atkinson and J.D.M. Gordon. Oceanography and Marine Biology: An Annual Review, 2005, 43, 69-122

lower leaf surfaces and on branches and trunks (Naidoo & Chirkoot 2004). The presence of the dust reduced photosynthesis, measured as carbon dioxide exchange and chlorophyll fluorescence, by 17–39%."

Sediment nutrients: p. 78: "Field studies of seagrass assemblages along gradients of siltation found that species richness and biomass declined rapidly when the silt and clay content of the sediment exceeded a threshold (Terrados et al. 1998, Bach et al. 1998). It may be assumed that deposition of large amounts of fine coal particulates will elicit similar effects."

As the Project application has identified, the construction of a railroad on the glaciomarine drift on the Project site will be subject to numerous risks. The application states as follows:

Based on the American Railway Engineering and Maintenance-of-Way Association (AREMA) standards, the clay and silty to sandy clay composing the glaciomarine drift is considered a "poor" to "bad" subgrade for a railway embankment. Under these conditions, geotechnical risks arise without adequate subgrade preparation. These geotechnical risks include medium- to high-severity frost heave, fair to poor drainage, and slight to high severity pumping action along the rail alignments.

Concerns of timing may motivate the Project applicants to shortchange the evaluation needed to ensure that these concerns have been addressed. This concern is exacerbated by the possibility, discussed above, that local agencies may not have the capacity to ensure that these challenging conditions have been addressed appropriately or to monitor implementation of necessary mitigation measures. The EIS must document fully the studies needed to address these conditions and the monitoring that will ensure the implementation of mitigation measures.

Fresh Water

The GPT site and rail transportation will have effects on surface and ground water resources. The EIS should address all potential water quality impacts from rail transport, including fugitive coal dust and diesel particulate accumulation in wetlands and surface waters including streams, rivers, and lakes. In addition, leachates discharged from rail cars in transit should be examined both for specific impacts to discharge sites as well as in combination with other contaminants common to rail structures (copper dust and creosote, for example).

Along the rail route, special attention should be paid to the rail trestle crossing of Lake Pend Oreille and the cumulative risk of derailment and to nearshore environments of the Columbia River. These nearshore areas include multiple usual and accustomed fishing areas of Columbia River tribes, and will be the site of accumulation of contaminants from increased coal traffic.

Of particular concern, little is understood of the potential impacts of storing up to 2.9 mmt of PRB coal in a single site such as that proposed for GPT. The location of the approximately 80 acre coal storage area is proposed to be on a gravel pad sitting atop filled wetlands and surface aquifers. As rain and water for dust suppression are absorbed by the coal stockpiles, leachate will

enter surface aquifers and potentially sub-surface aquifers, leading to off-site discharge of contaminants through fresh water seeps. As Nakajima et al. describe:

“It should be noted that when stockpiled coal is exposed to water, whether through rain or the application of a water spray, some organic matter, such as calcium, magnesium, and sulfur (Nakajima et al., 2005) leach out. ... Since self-heating can increase the local temperature inside a stockpile to above 100° C, the application of a water spray to reduce localized self-heating results in hot water running through the stockpile, which increases leaching.”⁹⁹

Leachates from coal stockpiles also contain the potential both for high acidity and high PAH content, of particular concern for herring embryos and freshwater aquatic life. Gibson et alia also make a strong case for the need for more research into bioavailability of contamination within coal leachate:¹⁰⁰

p. 83: "The strong acid-producing potential of coal pile runoff has been confirmed in numerous studies of simulated or actual leaching of coal stockpiles (Hall & Burton 1982, Tease & Coler 1984, Swift 1985, Tan & Coler 1986, Carlson 1990, Cook & Fritz 2002) and has been shown to exert negative effects on terrestrial vegetation (Carlson & Carlson 1994), groundwater quality (Carlson 1990, Cook & Fritz 2002) and stream invertebrate communities (Swift 1985). Apart from sulphur content, a number of other factors are likely to influence coal leachate pH, including age and particle size of coal, rainfall frequency and amount, coal moisture content and the presence of sulphur-oxidising bacteria (Davis & Boegly 1981a)."

p.100: "Indeed, most studies on the effects of unburnt coal on aquatic biota have been done in freshwater. Given the extensive compositional heterogeneity of coal and the diversity of weathering and exposure conditions, it seems improbable that coal as a whole can be labeled as 'toxicologically benign'."

p.112: "If one adopts the precautionary principle, any coal sample that is known to contain high concentrations of metals and organic compounds is potentially capable of releasing these to the environment. Leaching studies and bioassays are required to prove otherwise."

The various vectors for coal contamination to the marine environment must be examined, at a minimum including the following pathways as described by Gibson et alia in **Figure 2**.¹⁰¹ Of particular concern in this equation, seeps in the nearshore environment may contain legacy pollutants from aerial deposition by the adjacent refineries over decades of operation.

⁹⁹ Glenn B. Stracher, *Geology of Coal Fires: Case Studies from Around the World* (Geological Society of America, 2007) at 45.

¹⁰⁰ Biological Effects of Unburnt Coal in the Marine Environment, 2005 by R.N Gibson, R.J.A. Atkinson and J.D.M. Gordon. *Oceanography and Marine Biology: An Annual Review*, 2005, 43, 69-122

¹⁰¹ Biological Effects of Unburnt Coal in the Marine Environment, 2005 by R.N Gibson, R.J.A. Atkinson and J.D.M. Gordon. *Oceanography and Marine Biology: An Annual Review*, 2005, 43, 69-122

The pathway for contamination from coal stockpiles into seeps, a mixed freshwater/saltwater environment favored by juvenile salmon, is of real concern:

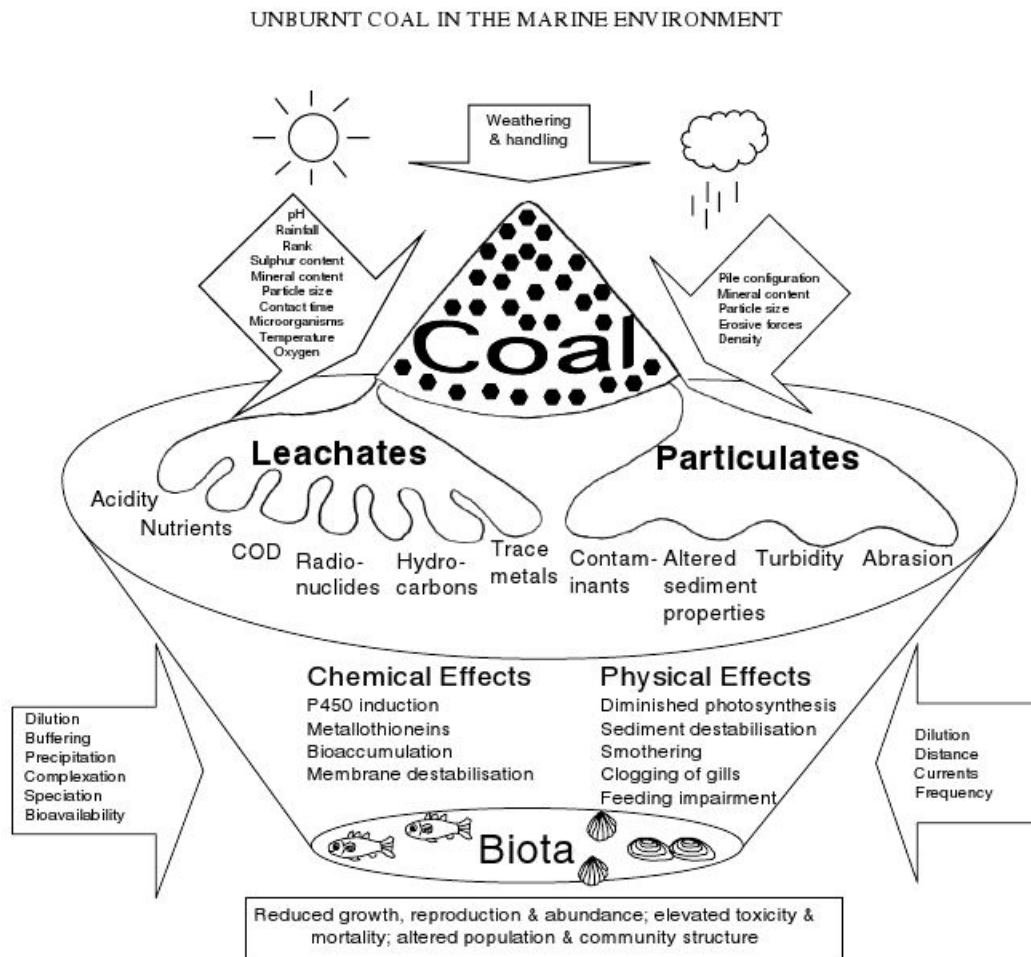


Figure 2. Factors affecting behavior and effects of uncombusted coal in the marine environment (where “COD” means chemical oxygen demand). Influential factors in boxed arrows.

Source: Gibson et al.¹⁰²

Water quantity must also be examined, including drawdown of aquifers, diversions or diminutions of surface flow, hydrologic changes affecting seeps and springs, and drinking water impacts of Gateway Pacific Terminal’s construction and operation. The agencies should ensure that the EIS describes, in detail, the possible sources of all water needed for the railroad and associated mining activities, including water originating in any over-allocated water source.

In the case of GPT, the PID identifies contract capacity with the Whatcom PUD for 5.33 million gallons a day of industrial water:

¹⁰² *Id.*

The PUD supplies approximately 17 million gallons a day of industrial water to other industries located at Cherry Point and holds rights to 53 million gallons a day. Pacific International Terminals has contract capacity with the PUD for 5.33 million gallons a day of industrial water.¹⁰³

This 5.33 million gallon figure is an average, however, and cannot be used to understand GPT's probable demand for peak use of water. During the driest and hottest months of the year – July through September – GPT's peak demand will coincide with low stream flows in the Nooksack River. The EIS must examine peak use in the context of stream flow requirements for salmon migration and upstream senior withdrawals for agricultural, industrial, and municipal uses. As a mitigation measure, capture and reuse of site water for water reuse in dust suppression of coal stockpiles, as has been implemented at several large Australian coal export terminals, should be considered.

Subsurface Noise and Immitigable Impacts

Each of the coal terminals including GPT represents immitigable impacts that must be studied on an individual terminal basis and in combination, as with an area-wide EIS. Without an area-wide EIS, the combined impacts of the approximately 5 proposed terminals cannot be understood. Without analyzing their cumulative impacts over time, the full threat they represent to this region will not be understood by decision makers.

Immitigable impacts which must be studied include rail traffic through the bottleneck at Spokane, Lake Pend Oreille, and along the Columbia River; rail noise; traffic delays and emergency response at crossings without grade separation; climate impacts from non-sequestered carbon dioxide emissions from power plants and coal transport; ocean acidification from carbon dioxide emissions and sulfur emissions from both transport and combustion; and subsurface noise impacts on marine mammals both in the open ocean but especially in the Salish Sea.

This last issue, subsurface noise impacts in the Salish Sea, is one of the most acute of the immitigable impacts that must be studied. In combination with other deep-draft traffic, including a proposed increase in both coal bulkers and tar sand tankers from Vancouver-area ports, cumulative increase in subsurface noise could have massive and detrimental impacts on both resident and transient marine mammals including the endangered Southern Resident killer whale, other smaller dolphins, humpback whales, gray whales, harbor seals, river otters, Steller sea lions, common minke whale, Dall's porpoise and harbor porpoise among many other species.

Engine, propeller, and vibration noise, among others, must be studied in connection to GPT's proposed 487 bulker visits each year. To understand the actual impacts of this noise, it must be understood in combination with other cumulative noise impacts. With shipping account for 75% of anthropogenic subsurface noise, behavioral impacts on species like the killer whale (a species that uses sound for communication, echolocation, and hunting) from subsurface noise impacts must be studied.

¹⁰³ p. 241 of the Project application (using PDF pagination)

Fueling & Servicing Vessels

Cape-sized and Panamax freighters require very large quantities of bunker fuel to fill their tanks before transporting their heavy cargo from the West Coast to China. This presents the likelihood of maritime activities that need to be examined in the EIS:

- Where are these freighters going to be fueled and serviced, and what are the environmental impacts of these activities?
- What are the impacts of the traffic, noise, fueling requirements and maintenance needs associated with required tug fleet?

No fueling, maintenance or servicing should be allowed at Cherry Point or any other site proximal to a designated aquatic reserve, since other more environmentally sound locations are available.

Baseline Monitoring

The 1999 Settlement Agreement required sediment, tissue and water quality monitoring starting with a baseline in 1999 and annually every year afterwards.¹⁰⁴ After several years of developing the protocols and schedule with the proponent's consultant, the state approved the "Sampling and Analysis Plan" (SAP) in 2005 for immediate implementation. The SAP was re-affirmed as state-approved in 2009, again to be immediately implemented. The studies in the SAP still need to be completed with at least three years of data, at a minimum, to establish baseline conditions. Without these required studies, there is no legitimate baseline from which trends in the physical, chemical or biological constituents of the Project site and environs can be accurately measured.

Ballast Water and Aquatic Invasive Species

The existing shoreline permit for the GPT proposal, as a result of the 1999 Settlement Agreement (SA) before the State Shorelines Hearings Board in 1999, requires every freight vessel, including barges, to be inspected to verify that the vessel had completed an exchange of the entirety of the vessel's ballast water in mid-ocean and that the ballast water or ballast water compartments did not harbor aquatic invasive species (AIS). This requirement was established for a facility that would move about 1/7th of the quantity of bulk materials that is now being proposed; thus the current Project's vessels will transport approximately 7 times the quantity of ballast water to Cherry Point.

AIS are documented to be one of the primary threats to marine ecosystems worldwide. Ballast water is the primary vector for introduction of large quantities of AIS, and bulk freighters are the dominant source of introduced ballast water as well as the primary source of AIS from Asian and other overseas environments. A single Cape-sized freighter may hold up to 17,000,000 gallons of ballast water in transit.

¹⁰⁴ Settlement Agreement, at Section 2.5.

The estimated 487 vessel loadings annually will require the discharge of an enormous volume of ballast water at Cherry Point. Mid-ocean ballast water exchanges are estimated to be no more than 70% effective, which means that approximately 30% of the coastal water of origin will be introduced to the waters off of Cherry Point. Additionally, the survival of transported AIS is greatest between comparable latitudes, such as the Pacific Northwest and China.

Thus, the following questions need to be addressed in the EIS:

- What is the projected increase in ballast water discharge, the change and risk levels of origin, and the other characteristics e.g. AIS including bacteria/viruses, sediment content, etc from the GPT vessels?
- What are the quantities and characteristics of AIS that will be transported to Cherry Point via hull fouling?
- How will hull fouling be inspected and AIS controlled?
- Will SSA be required to pay state-contracted divers to monitor hull fouling and remove AIS if present?
- Will all vessels' ballast water tanks be inspected by state-approved inspectors for salinity, turbidity, and species composition to determine if open-water exchange was performed as required under the existing SA?
- Will SSA pay for all required inspections and sample processing as required under the existing SA?
- Will vessels that fail the ballast exchange tests be prohibited from loading and required to sail 200 miles offshore to perform the required open-water exchange per the existing SA?
- Will vessels that violate the open-water exchange requirement repeatedly be permanently banned from docking to the GPT as required in the SA?
- How will such requirements be enforced?

Under the current SA, as a condition of the shoreline permit, the state is a party for compliance purposes with the terminal operator, SSA, which contracts with each shipping client through a terminal agreement. The terminal agreement sets forth all conditions which the vessel operators must agree to meet to call at the terminal. This arrangement, which SSA has agreed to in the existing shoreline permit, avoids any dispute arising from claims of "federal supremacy" or "inconsistency with state ballast water regulations" in that this condition is compatible with federal and state law and much more protective of the special environmental conditions within the Cherry Point Aquatic Reserve.

Each of the issues above also needs to be addressed for each of the other coal transfer terminals and the cumulative impact analyzed. Ship-borne terrestrial biota such as rats, insects, etc. also

need to be evaluated. For example, the Asian black rat is now commonplace worldwide as a result of vessel transport.

Cumulative Impacts of Vessel and Train Traffic

The coal delivery system for each of the terminals proposed in Oregon and Washington includes the same mines, the same rail line, the same type of regional transfer facilities, the same vessels, the same vessel route, and the same destination coal furnaces. Diesel, coal dust and black carbon emissions are unavoidable adverse impacts to wildlife, fish stocks and habitat that cannot be adequately mitigated along the entire route.

All coal trains entering Washington and Oregon and crossing or running adjacent to salmon-bearing streams will cumulatively adversely impact the Columbia River basin fish resources as a result of emissions and train derailments. In addition, coal transfer facilities in nearshore estuarine areas will cumulatively adversely impact migrating salmon, especially juvenile salmon, from the Columbia River basin as well as from other rivers along the Pacific Coast. These same salmon, as well as stocks from Northern California, British Columbia and southeast Alaska, migrate along the coast to and from the Gulf of Alaska, where an estimated 10 billion smolts annually enter the world's largest salmon nursery. These stocks will be cumulatively and adversely impacted through vessel emissions and discharges, but more importantly through the heightened risk of oil spills due to the greatly increased coal bulk freighters and projected tar-sands tankers.

The route of the coal ships along the vessel route from Oregon north to the Gulf of Alaska mirrors the migratory pathway of all five species of salmon, and a myriad of marine birds and mammals. The estimated 150 million metric tonnes of coal to be exported annually from the 6 proposed coal terminals will generate approximately 3,000 additional vessel transits (974 from GPT alone) traveling each year up the coast, across the Gulf of Alaska, through 10 mile-wide Unimak Pass, east from the Bristol Bay vicinity out to the western extent of the Alaska Aleutian Islands, then to Asia.

In addition to coal bulkers, the projected Kinder-Morgan pipeline expansion in Burnaby, B.C. will annually yield approximately 500 tar-sands tankers traveling out-bound through south Georgia Strait, Boundary Pass, Haro Strait and the Strait of Juan de Fuca where they head north up the coast to Unimak Pass in Alaska. These tankers will join the GPT coal bulk freighters at narrow Boundary Pass, turn south through Haro Strait, and west out the Strait of Juan de Fuca where together they meet the rest of the coal bulk freighters heading north from the other Oregon and Washington coal terminals.

Further north, at Kitimat, B.C., an additional 500 tar-sands tankers from the proposed Enbridge Pipeline annually are projected to enter the coal plus tar sands traffic heading north to Unimak Pass, AK. The cumulative adverse impact from these 2,500 coal bulker and tar-sands tankers (5,000 transits) on the marine life that utilizes the same pathway for their migration must be addressed. These marine resources include the iconic salmon species of the Pacific Northwest, particularly the vulnerable smolts rearing in the Gulf of Alaska Gyre, as well as migrating whales

and other marine mammals, and migrating and resident seabirds that spend part or all of their life cycle in the Pacific Northwest and along the coasts of BC, SE Alaska, and the Aleutians.

Several factors make the cumulative impact of these new vessel transits significant. First, the sheer size and mass of coal-laden bulkers sets these ships apart from other classes. For cost reasons, the bulk transport industry is trending toward increased usage of Cape-sized vessels, with the remainder in the Panamax class. Built with single hulls, sometimes double bottoms on newer ships, they are exceptionally heavy when loaded and full of bunker fuel (up to nearly 2 million gallons) at the beginning of the transit leaving the Pacific Northwest for China. At cruising speed, these behemoths make take up to 10 miles to come to a complete stop. Maneuverability is poor due to aft only propulsion – no bow thrusters – and their great size and mass. Because of these characteristics, increased whale injuries and mortalities due to ship strikes needs to be studied as part of the EIS.

Second, the nature of the growth in tar sands tankers transiting the Salish Sea and coast north to Unimak Pass and to Asia. These ships will be carrying the most persistent hazardous fossil fuel cargo known to mankind. Tar-sands product is from three to five times as persistent in the marine environment as the most persistent heavy crude oil. Exxon Valdez –type crude oil keeps killing organisms conservatively 30 years from the spill date, while tar-sands products have been estimated to keep killing organisms and wreaking environmental havoc for 90 – 150 years. Although the solvents used to thin the tar-sands asphaltenes (60% in Alberta deposits) make it viscous enough to transport by pipeline, they are thought to evaporate relatively quickly after initially killing surface biota. The predominant heavier fraction will sink in marine water seeking the thermocline/halocline depth where it will spread out as a submerged toxic spill. That thermocline depth may very well be on the bottom and directly impact benthic life forms.

The increased risk of coal bulk and tar-sands tanker accidents, allisions, collisions, groundings and spills needs to be determined along the entire shipping route. Due to the high resource value of commercial species, such as crab, prawns, bottom fish, herring and salmon, and the fact that their economic bases are in Seattle and other Pacific Northwest ports, as well as BC and Alaska, a spill from a coal bulk freighter and/or tar-sands tanker accident would be significant and immitigable. In northern waters, the remoteness, inclement weather, extremely rough seas, lack of tug or spill response make any type of clean-up or recovery impossible. Due to the sheer size of the coal bulk freighters, no rescue tugs are capable of assistance even if they were available or within reasonable proximity.

Unlike Puget Sound, there is no vessel traffic monitoring and management system along the Great Circle Route that these vessels transit. These vessels are operated under foreign flags, and by foreign captains and crew. These issues need to be factored into the risk management determination included in the EIS. Of particular concern is the area centering on Unimak Pass, AK. This bottleneck of vessel traffic heading from the west coast to Asia currently is overtaxed and congested. Having no vessel traffic control or management, spill response capability, or adequate response tug potential, all deep draft West Coast vessel traffic including 17% of California's vessels transit Unimak Pass on their way to Asia and environs. Currently 4,500 vessels annually transit this narrow pass. The EIS needs to determine the increased risk of

accidents and spills from adding the transits of an additional 1,500 coal bulk freighters and 1,000 tar-sands tankers.

The likelihood that increasing the Unimak Pass transits from 4,500 to 7,000, with the combination of low-maneuverability coal bulk freighters and toxic tar-sands tankers, will create significant and immitigable adverse impact must be addressed. The EIS must also consider the fact that a major spill at this location would have a devastating impact upon the annual \$1.5 billion seafood industry of Bristol Bay and environs. The extremely valuable and sustainable nature resources of the Alaska Maritime National Wildlife Refuge and the economies that depend upon them would also be adversely affected by an accident along the 600 mile reach from Unimak Pass to the outer extent of the Alaskan Aleutians. The southern portions of the Refuge bordering the Gulf of Alaska would also be similarly adversely affected, if not even more so, by these vessels transiting the 1,300 miles across the Gulf – some of the roughest and most dangerous seas in the world.

Extreme waves and increased storm strength and frequency, coupled with common bulk freighter structural defects, essentially guarantee large bunker fuel spills with no possible spill response or clean-up due to remoteness, sea conditions and lack of response tugs and spill equipment. This is also true of the tar-sands tankers that will share the same route all the way to China.

The resources of the Oregon, Washington and British Columbia coasts are, of course, also at risk of coal bulk freighter accidents and catastrophic failures which can release large quantities of bunker fuel, adversely affecting the afore-mentioned migratory fish, mammals and birds, and their habitat. Vessel traffic from the southern-most transfer terminal at Coos Bay, OR will travel 330 miles along the Oregon-Washington Coast being met about half way by coal terminal vessel traffic from the Columbia River. The GPT vessel traffic and Kinder-Morgan tar-sands vessel traffic will join the other north-bound coal bulk freighters at the Strait of Juan de Fuca to transit the next 600 miles along the BC coast. The total US-BC coastal vessel route is approximately 2,800 miles, not including the Salish Sea or Columbia River portions. The EIS needs to address the cumulative impacts on the resident and migratory marine species along this route from vessel accidents and spills, establish safety and response plans and requirements, and any feasible mitigation actions.

Unlike the Columbia River and Salish Sea, which have established vessel traffic management and spill response systems, the 2,800 mile coastal route is not adequately covered. What are the existing systems in place, what is their capacity to adequately address vessel accidents and spills along this coast, and what will be needed to upgrade the systems to protect the marine resources at risk? These same questions need to be addressed in the Columbia River and Salish Sea to determine vessel traffic risk and spill response as well as ecological consequences. Currently bulk freighters are not covered under WAC 173-182 requiring tug escorts, pilots, or spill response plans. Given the large quantities of bunker fuel and poor maneuverability of these vessels, an analysis of these requirements needs to be completed and such vessel traffic mitigation measures required.

Cherry Point Herring Behavior Studies

As required by the 1999 Settlement Agreement¹⁰⁵ for the original GPT proposal, a comprehensive study of herring pre-spawning, on-shore migration and spawning behavior was to answer the following key questions:

- Are there preferred nearshore migration corridors/schooling areas at or near the GPT project site?
- Does the ship activity at the GPT site disrupt the use of a preferred nearshore migration corridor/schooling area?
- Does the trestle/wharf structure, ship activity, and bulk terminal operations at the GPT site disrupt the nearshore lateral migration and concentration of the herring?
- Does the trestle and ship activity displace the herring from using the spawning habitat in the immediate vicinity of the trestle?

The answers to these and related questions still remain largely unknown due to inconclusive monitoring to date. Prior to approval of any facility at the GPT site, these basic biological questions need to be comprehensively addressed and answered.

There is agreement on the pre-spawning holding area offshore, based on years of WDFW data and observations. There is also agreement on the areas used for spawning in the nearshore, again based on WDFW data. What remains unknown is precisely how, when and where the herring migrate to shore to spawn. It is generally accepted by scientists that the herring are ultra-sensitive to noise, light and motion before they spawn and during their on-shore migration (see citations Settlement Agreement Appendix C). Once spawning begins, little can dissuade their efforts to procreate.

Due to the greatly increased number of vessels and the related tugs required to dock/undock these exceptionally large, heavy coal bulk freighters compared to the original GPT projections, these vessel/tug activities and loading operations are much more significant and likely to disrupt herring behavior. Rather than relying on observations and guesswork, definitive studies must be carried out to determine how herring spawning behavior is impacted by the following: the size, location and sensitivity to disturbance of the offshore pre-spawning holding area, the timing and pattern of the onshore herring migration (i.e. monitor the entire season, day/night time, tidal variations, water column depth of school location, dimensions of “corridor”, and sensitivity to disturbance), and finally, the effect of terminal operations, including loading.

A pilot study was proposed to be instigated after GPT operations began and to run for two years to determine if the terminal operations would affect herring lateral nearshore migrations and concentration. However, if the results were to show adverse effects, it would be too late to achieve meaningful mitigation. Once the terminal starts operation, there is no turning back. Once the herring abandon their last spawning grounds the population will be doomed.

¹⁰⁵ Settlement Agreement, at Section 2.3 & Appendix C.

The Cherry Point Pacific herring are a unique stock – distinct genetically and in their behavior. The late spring timing of their spawning places them in a separate class temporally. Other Salish Sea herring will not and have not reset their spawning behavior to replace the Cherry Point stock in time and place over the approximately 24 miles of excellent habitat that is currently not being used by the Cherry Point stock, possibly due to the vast decline in spawning biomass. Clearly, better information on the effects of lighting, noise, and vessel movement and presence is required to address adverse impacts to this dwindling resource with avoidance to be the only reasonable and dependable mitigation measure. The EIS must address all of these issues.

Truck and Automobile Traffic

GPT will create surface road traffic during both construction and operations, with over 2,000 direct employees estimated in the project PID during construction, and over 400 "direct jobs" estimated during operations. Please study the following:

- Probable routes to and from GPT for trucks and commuter vehicles, the number of anticipated vehicle trips, impacts on communities and roadways through which they travel, increase in accident and mortality rates, increase in community infrastructure costs, & parking requirements (project design shows far fewer parking slots than anticipated employees).
- In the Ferndale and Custer areas 18 trains per day will occlude crossings at Slater Road, Hovander Road, Washington St, Thornton St, Brown Rd (twice), Grandview Road (twice), Custer's Main Street, Valley View Road, Ham Road, Kickerville Road, Bay Road, and Aldergrove Road. These areas are likely recipients of an increase in GPT traffic, which will also be impacted by operation of trains. The combined impacts of train and commuter traffic on communities, their access to emergency services, commute time, and property values should be studied, as should a likely increase in delayed commuters racing to beat the trains and a commensurate increase in vehicular accidents and vehicle/train accidents.

Fugitive Coal Dust and Diesel Emissions Impact on Sea-Surface Microlayer

The issue of fugitive coal dust, diesel emissions (black carbon) and minor pollutant spills from ballast and bilge water discharges affecting the micro layer of the marine waters in the vicinity of the wharf operations needs to be addressed.

“Most biological and chemical processes of importance occur at surfaces or interfaces between differing environments. The sea surface microlayer (upper 0-1 mm) represents such an interface. It covers 71% of the world's surface and controls the exchange of natural and man-made substances between the atmosphere and hydrosphere”¹⁰⁶

¹⁰⁶ Hardy, J.T. The sea surface microlayer, 1982: p. 308

“The sea-surface microlayer is generally defined as the top several tens to several hundreds of micrometers of the water surface. Compared with the subsurface water, the microlayer is generally enriched with various organisms and chemical substances and considered to exhibit distinct physical, chemical and biological properties due to the accumulation of surface-active material within this thin layer”¹⁰⁷

“The microlayer is known to concentrate, to varying degrees, many chemical substances, particularly those that are surface active, and many organisms live and/or find food there. It is clearly the interface through which all gaseous, liquid and particulate material must pass when exchanging between the ocean and the atmosphere”¹⁰⁸

“Particulate inorganic species in the microlayer are better understood. Bubble flotation, mixing processes and atmospheric deposition control microlayer concentrations of these compounds to differing extents depending on geographical location. Overall, particulate species are the most consistently enriched in the surface microlayer because of stabilization of particles at the air-water interface through surface tension forces”¹⁰⁹ (Hunter, 2009).

PRB coal is a highly friable substance that easily crumbles and generates coal dust that is easily blown off the vessels and loading equipment by prevailing winds onto the adjacent marine water surface. Evidence of this effect is readily available by observing the very similar Westshore Terminal in Tsawassen or by perusing the photos on record by Paul Anderson.¹¹⁰ Despite efforts by terminal operators to spray the coal with surfactants and water misting to lower the dust emission problem, the material is prone to abrasion in transfer causing fine particulates to become airborne. As the coal is rapidly loaded into a ship’s hold, the resulting dust is pulled away from the deck opening by wind passing across the deck. As the wind speed doubles, the vacuum created pulling the dust out quadruples in strength.¹¹¹ In addition, as the hold is filled from the bottom toward the top, the distance that any dust needs to escape the hold is lessened which increases the dust dispersal potential.

The mechanism of coal dust generation and dispersal needs to be fully understood and quantified in order to determine adverse impacts and possible mitigation. Prevailing southwesterly winds will blow airborne coal dust toward shore in the vicinity of the macroalgae used by herring and an array of other marine organisms for spawning and rearing.

Additionally, the “breakwater effect” of Cape-sized and Panamax vessels moored along the proposed wharf needs to be studied to determine the dampening of wind and thus wave action on the shoreward side of the facility. This effect is discussed more fully in the 1999 Settlement Agreement.¹¹² The focus of Section 2.7 was, however, on beach physical dynamics which also still needs to be determined.

¹⁰⁷ Journal of Marine Systems, Aug. 2006: p. 23

¹⁰⁸ The Sea Surface and Global Change, 1997: p. xiii

¹⁰⁹ Hunter, Keith A. Chemistry of the sea-surface microlayer pp. 287-320 Cambridge Books Online, 2009

¹¹⁰ Paul Anderson’s photo exhibit of Westshore Terminals’ Deltaport facility are available online at <http://www.coaltrainfacts.org/multimedia#photos>.

¹¹¹ See comments submitted by Michael Riordan, Ph.D.

¹¹² Settlement Agreement, at Section 2.7, Littoral Drift and Wave Dampening.

The biological application of this effort needs to determine the nature and extent of a potential calm water area downwind of the wharf and vessels and the amount and distribution of black carbon (diesel emissions), bilge and ballast effluent, and coal dust deposition on the marine microlayer. The cumulative direct and indirect effects of such contamination of the sea-surface microlayer in an area known for herring and other marine species spawning, especially those eggs and larvae that float or are attached to macroalgae, is significant. Herring eggs in particular are highly vulnerable to PAH pollution.

Pier/Wharf Stormwater Treatment

The proposed pier and wharf constitute a large over-water impervious surface that will accumulate coal dust, service vehicle brake dust, tire track sediment, fluid leaks, and miscellaneous vessel emissions and machinery debris. Due to the exposed location of the over-water facility and the rainy climate in which it is located, how will this assortment of pollutants be collected and treated, and the effluent be discharged? What are the volumes, physical and chemical treatments to be employed, and the plans for storage and pumping the effluent upland for proper disposal?

The original GPT proposal was required to provide grating in the portion of the pier under which macroalgae could grow per 1999 Settlement Agreement Section 2.6.d – *Use of Grating*. It is estimated that this includes the approximately 450 lineal feet of pier from about +5' tide down to sea level (variable with tidal motion). Since the pier is designed to slope downward away from the shore until it reaches its optimum height, stormwater will be carried toward the wharf across the grated section. The surface of the pier in this grated section could be designed to allow stormwater to be channeled within the impervious portions of the 50-ft wide surface to collection points, with the grated panels being independent units. Most of the stormwater on the pier and wharf could then be collected and treated.

Although most cargo material will be transferred by conveyors, maintenance and service trucks, crew vehicles, inspection vehicles and many other miscellaneous trips will be made across the pier. An estimate of total trips and the amount of pollution falling through the grated section and blowing off the pier needs to be determined and mitigation planned for. The estimate would include: brake dust, oil and fluid drippings, maintenance debris, and tire track-out of sediment and dust from the upland and wharf areas.

Financial Assurance Requirements for Closure and Post-Closure

The coal export industry is extremely volatile, and there is no guarantee (no contract in place, and no showing of demand) that any bulk commodity other than coal will ever be shipped from Cherry Point. In the event that coal export becomes economically infeasible, PIT/SSA should be required to meet financial assurance requirements for closure and post-closure of the facility. Financial assurance, in the form of a trust fund, surety bond, letter of credit, insurance, or a

financial test, is required of the owners of hazardous waste treatment and disposal facilities.¹¹³ They are required to prepare a closure cost estimate that addresses expenses for ceasing operations of the unit, safely closing the unit, cleaning up any contaminants, and addressing post-closure care costs, including long-term maintenance of the unit or facility, monitoring, and record-keeping. These requirements should also be applied to the Project, in order to ensure that closure costs are not imposed on the public.

Coal export has a long history of boom and bust cycles. "Port officials at Bellingham, Wash., announced plans in November of 1980 to develop a \$50-million bulk terminal designed to handle coal and other commodities." The same source identifies Bellingham as a likely coal terminal in 1990, at a time when it was predicted that there would be "a major expansion of U.S. coal port facilities to reduce the present congestion and to handle anticipated growth, which some project to be as high as 255 mmt by the year 2000."¹¹⁴ This projection was wrong, as demonstrated by the expensive failure of the Los Angeles Export Terminal. LAXT, which closed six years after it opened in 2000, provided insufficient protection of taxpayers from the costs of closure and site cleanup, demonstrating the hazards of relying on project developers' good faith in a volatile market.

The likelihood that this cycle will repeat itself was recently addressed by Peabody Coal's former director of transportation:

"For the U.S. coal producer interested in building a terminal to serve a growing Chinese market, it might be wise to recall what happened with LAXT. Japanese banks, shipping companies, and trading houses were involved as LAXT participants, but Japanese utilities steadfastly refused to sign a long-term agreement guaranteeing they would take coal through the terminal. In the final analysis it was not environmental pressure that closed the LAXT terminal, but an inadequate flow of coal to support the terminal financially. Why would anyone think it would be better to rely on a "growing Chinese market"? Why would any Chinese utility or coal buyer sign a long-term coal import agreement when they have more than enough coal to supply their needs from their own mines? Why would anyone build an expensive U.S. coal terminal without long-term commitments to use it?

The international marketer advising his company to "get in the game" while there is still a "growing Chinese market" needs to make sure he is relying on something other than coal traders and magazine articles. He should talk to end users, and he should make sure there is a genuine long-term need for the coal at his price. Considering the Chinese penchant for coal arbitrage, one has to ask why a Chinese buyer would commit to buying U.S. coal

¹¹³ See, e.g., U.S. Env'tl. Protection Agency, TSDFs: Meeting the Financial Assurance Requirements, available at <http://www.epa.gov/osw/hazard/tsd/td/ldu/financial/famech.htm>.

¹¹⁴ Office of Technology Assessment, *Coal Exports and Port Development*, (Diane Publishing Co., 1990). See especially Ch. 3, Port and Shipping Technologies for Exporting Coal. Available at http://books.google.com/books?id=719q77zmIVAC&pg=PA33&lpg=PA33&dq=Port+and+Shipping+Technologies+for+exporting+coal&source=bl&ots=HPcJf_DfpL&sig=3ip0mWqkJxru1d8xKxMza_RHY6k&hl=en&sa=X&ei=ZPaWULTxNYnCigLKkoD4BQ&sqi=2&ved=0CCIQ6AEwAQ#v=onepage&q=Port%20and%20Shipping%20Technologies%20for%20exporting%20coal&f=false.

over Indonesian or Australian coal. Considering the wild variations we have seen in daily rates for Panamax and Capesize vessels, a cheap delivered price today may become an expensive delivered price tomorrow, particularly with increasing distance. The Chinese coal buyer knows that. The U.S. coal seller should not be naïve.”¹¹⁵

The Project should be planned on the assumption that coal export likely will not be feasible in the near future, and a closure and post-closure plan, along with financial assurances, should be required.

If the applicants claim that the coal export portion of the terminal will simply be transformed into an export facility for other bulk products, all of the following should be established:

- Engineering and other site development processes to alter the coal export portion of the site, including rail access;
- Environmental impacts of altering the site;
- Feasibility of altering the site – has such a transformation ever occurred at other coal terminals? How much will it cost?
- Demand for the export of other bulk commodities; and
- Financial assurances sufficient to ensure that the site alteration and concomitant environmental review and mitigation will be performed promptly and without cost to taxpayers.

¹¹⁵ Dave Gambrel, “Where Are the Mega-Ships Now?”, *Engineering & Mining Journal* 128, 134 (Sept. 2012), SEPTEMBER 2012 pp. 128- 134, available at <http://www.e-mj.com/index.php/features/2371-where-are-the-mega-ships-now> .

I. CONCLUSION

The Project is one link in a chain that would extend from the Powder River Basin, across countless water bodies and habitat areas and through ranches, farms, and communities in four states, to the Cherry Point site and Marine Protected Area, next to islands and through treacherous straits, across the Pacific Ocean, and finally to coal-burning power plants in Asia. The direct, indirect, and cumulative impacts of the Project will affect every environmental impact area, often in ways that have never been examined or quantified before. The Project is proposed to take place on sacred land of the Lummi tribe, and it will have adverse impacts on tribes throughout the Salish Sea. Thousands of Washington State residents will suffer from noise, vibration, and pollution impacts from the transport of coal. Rail transport of coal to the Project site will create a barrier to thousands of businesses, with economic impacts that nobody has even begun to calculate. Marine vessel traffic and other Project impacts will endanger the livelihoods of those who rely on fishing and tourism. These effects will be exacerbated by global climate change, a threat to humanity to which this Project will make a substantial contribution.

Assessing the impacts of a project of this scale and complexity is a daunting task for the Lead Agencies. It will undoubtedly be tempting to “draw lines” in order to make the job more manageable, or to claim that these impacts are “too big” to be assessed. Neither NEPA nor SEPA includes a “big project” exemption, however, and all of these impacts must be thoroughly addressed in order to achieve the ultimate purpose of environmental impact assessment: “to help public officials make decisions that are based on *understanding of environmental consequences*, and *take actions that protect, restore, and enhance the environment*.”¹¹⁶

Thank you for considering our comments.

Sincerely,

RE Sources for Sustainable Communities



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¹¹⁶ 40 CFR § 1500.1(c).

